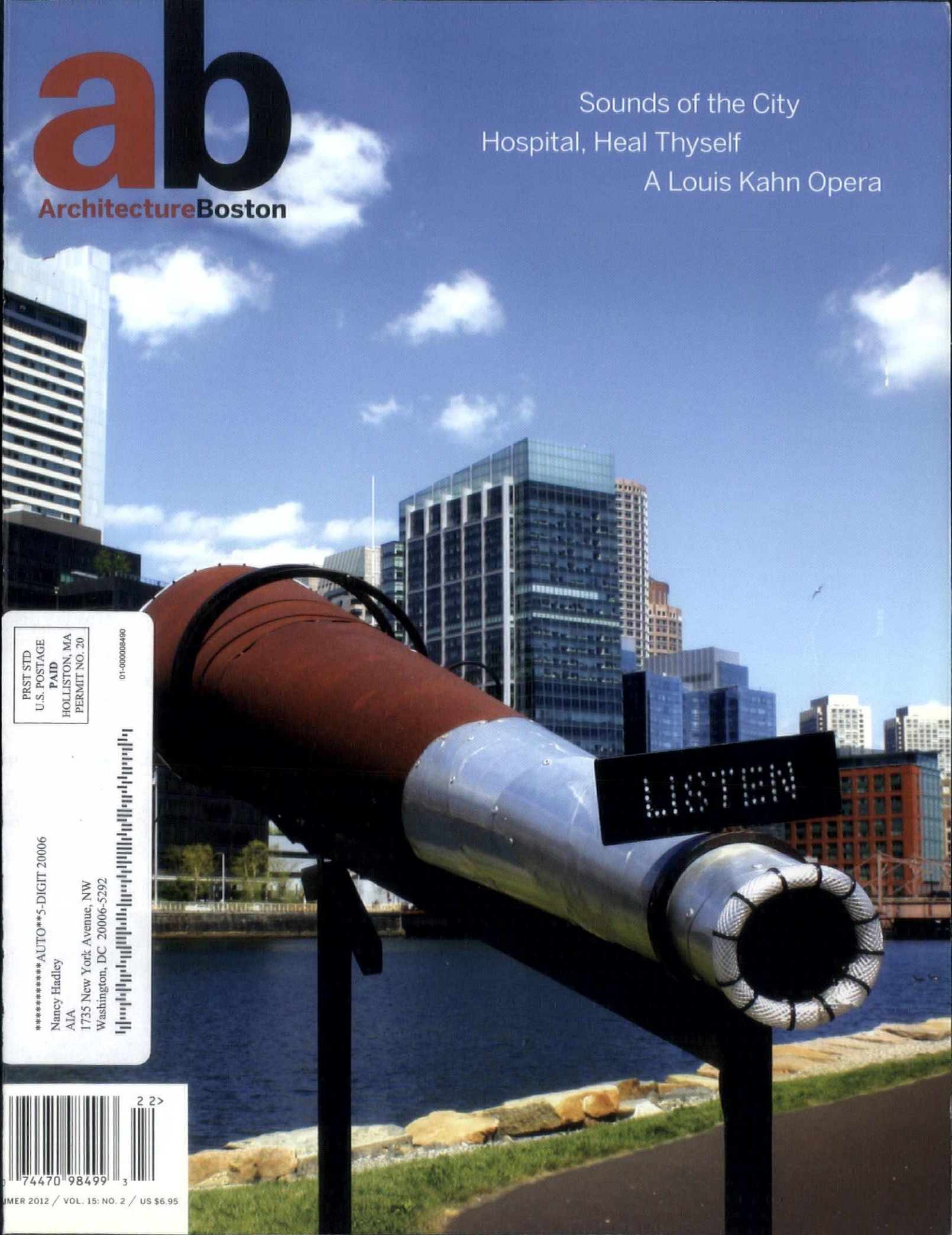
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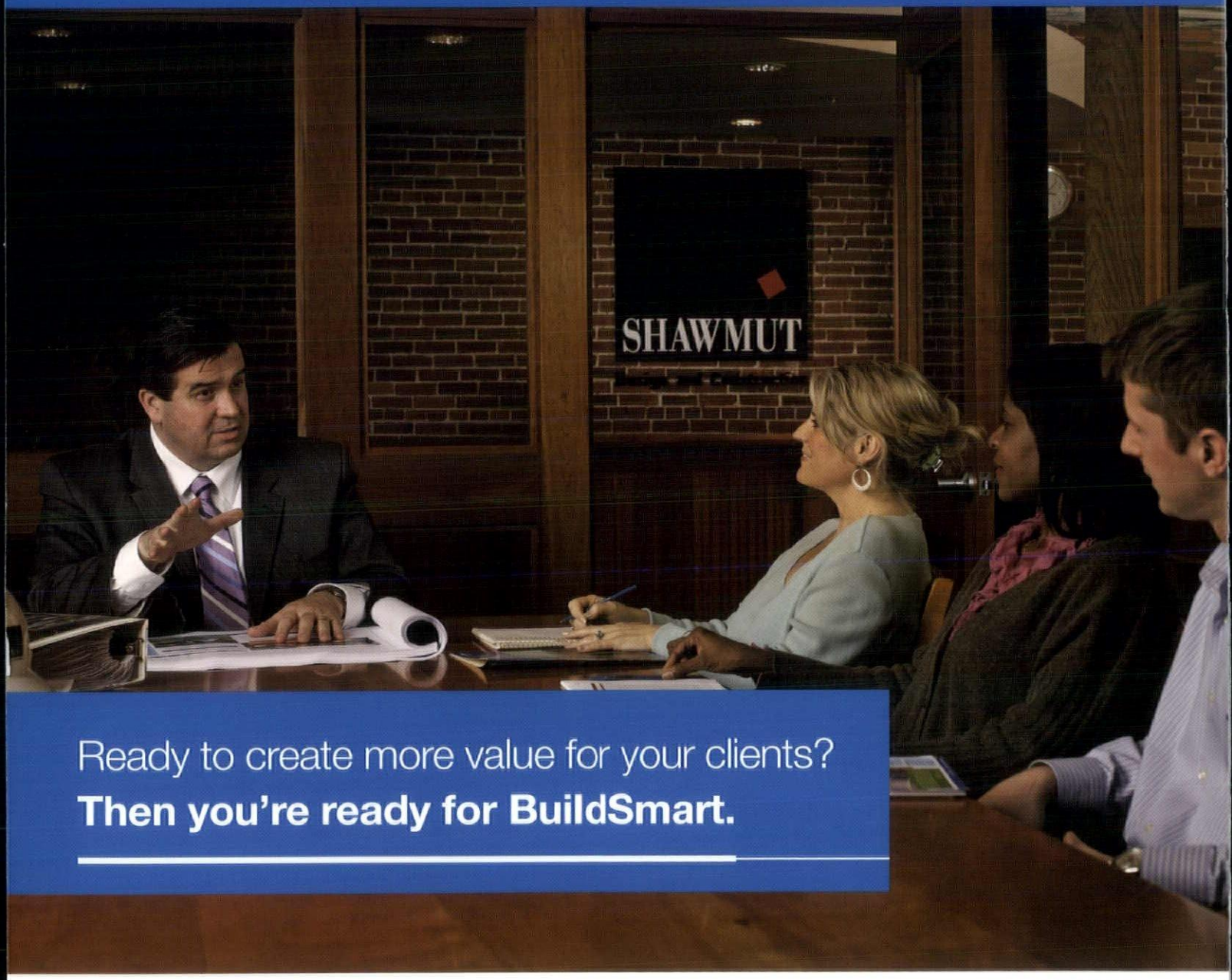
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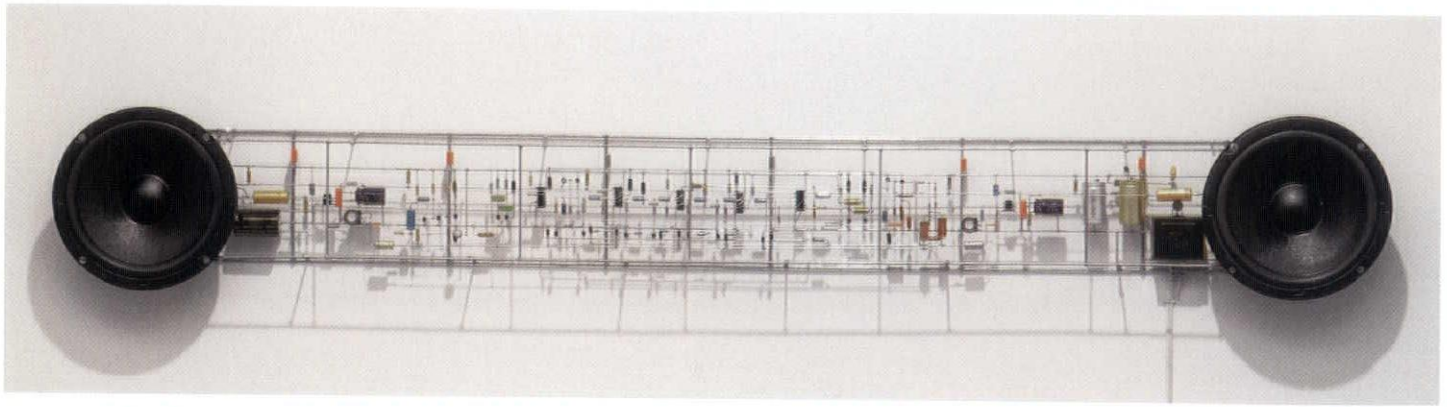



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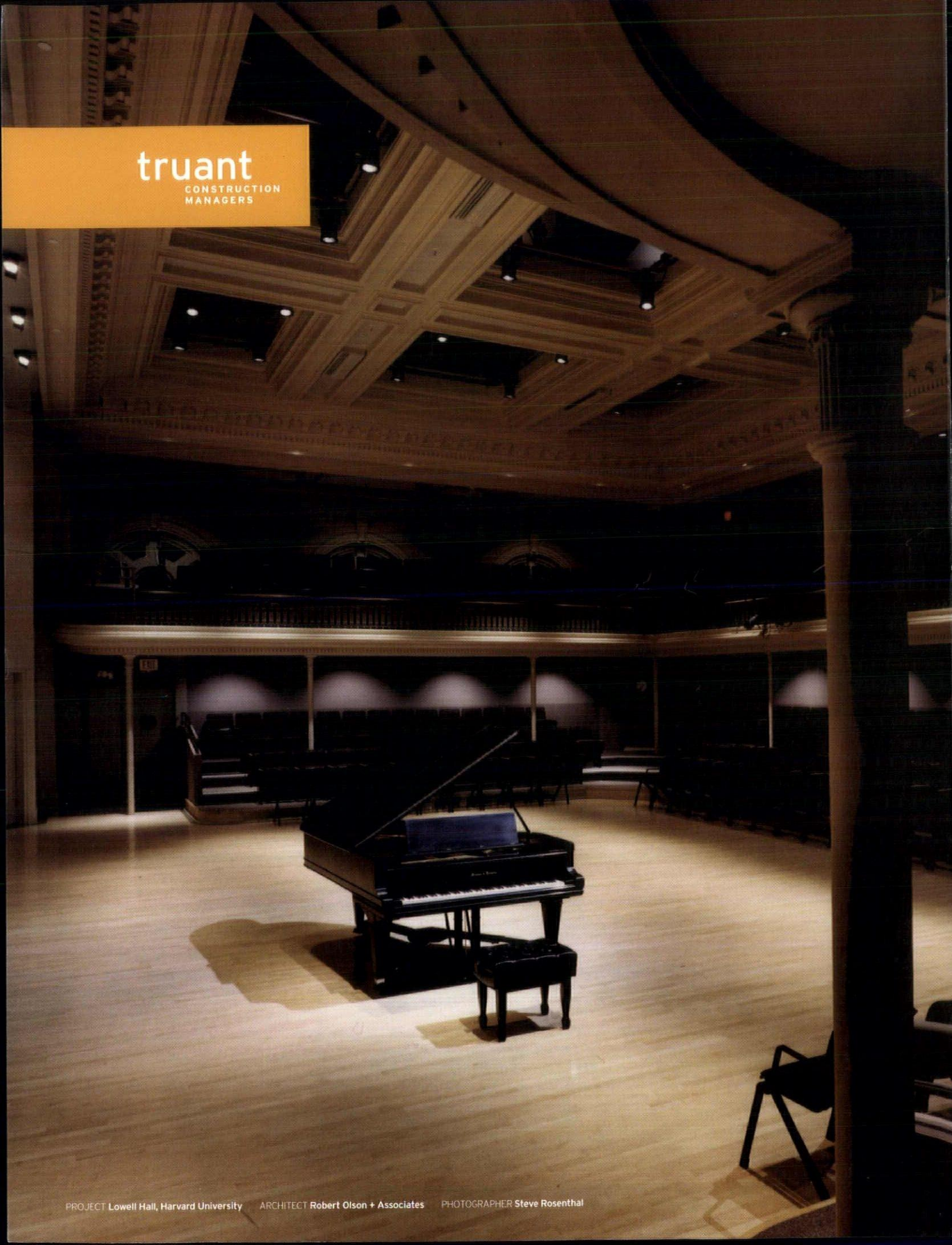
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Peter Vogel, *Duo*, 2006, speakers, photo cells, circuits, iron wire, 6½ × 47". Image courtesy bitforms gallery.

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Dennis Svoronos, *Fort Point Soundscape*, 2008, steel and aluminum. Photo: Kyle Nelson.




PROJECT **Lowell Hall, Harvard University** ARCHITECT **Robert Olson + Associates** PHOTOGRAPHER **Steve Rosenthal**

# How Does This Sound?

**We live in clamorous times.** Barking dogs, honking horns, lawn mowers, leaf blowers—about a third of the nation is regularly exposed to noise pollution above the level the EPA considers safe. And that's just the obvious din. The low roar of ventilation systems, the sigh of highway traffic, and the hum of electronics are nearly inescapable in the modern world.

And yet few human experiences are as sublime as deep listening. In a concert hall with fine acoustics, the end of Mahler's Ninth Symphony can be a revelation. Rain on the roof, the first spring peepers, a lover's voice—these are sounds we want to hear unmediated.

Not even the Garden of Eden was silent. But our soundscapes today are so cluttered that Congress passed a law in 2010 requiring manufacturers of the Prius and other quiet hybrid cars to build sound *back in* to their engines. Sponsored by Senator John Kerry, the legislation addresses the safety hazard to pedestrians of cars that can't be heard above ambient street noise—a surrender in the decibel wars if ever there was one.

Quiet is such a scarce commodity that people will pay a premium for it. Property values increase as communities become more peaceful; call it a serenity surcharge. The World Forum for Acoustic Ecology, with chapters in eight US cities, argues that access to quiet is a universal human right, albeit one mostly observed in the breach. "More and more, the acoustic environment is becoming a question of power, and of money with which to buy silence," the organization wrote in one of its founding manifestos.

When sound becomes noise, it can undermine shared social goals. Transit-oriented housing development in Dorchester was nearly derailed by complaints about the screeching trolleys making a sharp turn at Ashmont Station. Opponents of wind farms often cite turbine noise in their legal appeals. (In January, a panel of independent experts convened by the Massachusetts Department of Environmental Protection found no adverse health impacts associated with wind turbines. But we surely have not heard the last whir on that.) Hospitals struggle to create the tranquility their patients need to heal.

We all need to listen better, to sound and silence alike. Architects and designers can help if they elevate the aural aesthetics of their work to the same plane as visual and spatial concerns. The first step, as always, is awareness.

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PHOTO: Conor MacDonald

This is my first issue as editor of *ArchitectureBoston*, and so far it's a thrilling ride. I've known the magazine for several years, I subscribed to it, I even wrote for it as one of the nonpracticing "Other Voices" (September/October, 2006). Now I am honored to be at the helm of such a beautiful and well-regarded publication. I don't plan major changes, at least at the start, but I do hope to broaden the magazine's appeal and bring it more fully into the community conversation. And I hope to engage you all in this adventure: writing letters to the editor; attending sponsored public discussions; offering advice and cheer.

I once heard Tom Winship, the legendary late editor of *The Boston Globe*, give advice to a group of young reporters. "Make love to the city every day," he said. I took that to mean become *intimate* with it, learn its many moods and secrets, protect it but also help it grow. I try to live those words as a journalist and citizen of Boston. I look forward to deepening that relationship as steward of a publication that so clearly shares those values. ■

Renée Loth
*Editor*

# NURTURE A NEW GENERATION OF ARCHITECTS FOR A BETTER WORLD.

The Singapore University of Technology and Design (SUTD), established in collaboration with the Massachusetts Institute of Technology (MIT), is seeking exceptional faculty members in the area of Architecture and Sustainable Design for this new university slated to matriculate its first intake of students in April 2012. These are full-time tenure track positions at the level of assistant or associate professor, commensurate with the candidate's qualifications.

SUTD, the first university in the world with a focus on design accomplished through an integrated multi-disciplinary curriculum, has a mission to advance knowledge and nurture technically grounded leaders and innovators to serve societal needs. SUTD is charactertized by a breadth of intellectual perspectives (the "university"), a focus on engineering foundations ("technology") and an emphasis on innovation and creativity ("design"). The University's programmes are based on four pillars leading to separate degree programmes in Architecture and Sustainable Design, Engineering Product Development, Engineering Systems and Design, and Information Systems Technology and Design. Design, as an academic discipline, cuts across the curriculum and will be the framework for novel research and educational programmes.

MIT's multi-faceted collaboration with SUTD includes the development of new courses and curricula, assistance with the early deployment of courses in Singapore, assistance with faculty and student recruiting, mentoring, and career development, and collaborating on a major joint research projects, through a significant new international design centre and student exchanges. Many of the newly hired SUTD faculty will spend up to year at MIT in a specially tailored programme for collaboration and professional development.

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### II. Building Technology

Candidates will be assessed primarily on the record and promise of exemplary building technology research and teaching. Also important will be the degree to which a candidate can collaborate in research and teaching with others in diverse scientific, engineering and design disciplines. SUTD seeks individuals who are committed to advancing knowledge that will enhance the ability of designers and engineers to bring about a future sustainable built environment. Energy in buildings, advanced and high performance building systems, or daylighting and acoustics are areas of interest for this position. Other areas of expertise in building technologies will also be considered. A doctoral degree is preferred but not required, while teaching experience in a school of architecture or engineering will be valued.

### III. Computation

Singapore University of Technology and Design seeks tenure track candidates interested in teaching and research involving digital technologies for the Architecture and Sustainable Design pillar of SUTD. We seek faculty candidates well versed in the virtual and physical design space in every facet of an architecture curriculum, in exploring research questions broadly in areas of parametric design, simulation, fabrication and performance-based design. The candidate must be able to instruct students in application based software and theory in a specified area. Most important we seek leadership from creative faculty interested in advancing the field.

### IV. Theory and Culture

Candidates are expected to demonstrate a proven record of scholarship and teaching in topics of the history, theory and culture of architecture. Their work should investigate ways in which architecture reveals and reflects cultural, historic and socioeconomic dynamics at a variety of spatial and temporal scales. In their teaching, they should be able to show how architectural production is linked to shifts in technological paradigms, ideological world-views, societal beliefs and artistic and creative enterprises. Candidates will be expected to have a strong awareness of global history and/or how manifestations of technology and science affect design and society.

If you want to be part of the founding faculty with a focus on Architecture and Sustainable Design, please apply to SUTD at **www.sutd.edu.sg**

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# On "Change" (Spring 2012)

**Rachel Levitt Slade's** "Architects Perceived," however challenging, should be a welcome reminder to architects and design professionals that we should apply critical thinking not only to our own work but also to ourselves and how we personally and professionally engage the world outside our limited sphere. While there are difficult trade-offs in creative professions and working outside conventional thinking, much of Slade's critique regarding disconnected architects rings true with commentary I hear from others outside the profession.

From the earliest stages of design education, we are taught to be highly critical and debate architectural ideas on their intellectual merits. In the controlled space of the academy, we are free from many real contingencies when solving design problems. And although it may be a necessary and liberating experience to test the limits of architectural logic and language in theoretical confines, we must recognize that the same rules do not apply outside the studio—especially when it comes to our engagement with others. Competitive posturing, obtuse language, insincere consideration of clients' objectives, and other affectations may be symptomatic of the academic environment, but they do not fly especially well after graduation. In practice, the combination of competition, marketing, and constraints of time and money can also prevent healthy interaction with the broader world.

As Slade notes, artifice is no substitute for real engagement, whether with one's client or oneself. Some intellectual honesty and self-criticism might go a long way to help us engage those around us in a more human way. It is, after all, the premise of a generalist profession to broaden our knowledge of the world around us: there is no reason it must be limited to the design of buildings.

TOM MURDOUGH, ASSOC. AIA
*Murdough Design*
Boston

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**Unlike the socially unskilled** in other professions, architects know how to dress well, and this obscures their less desirable traits from all but the closest observers. Woe to the client or new hire—or spouse—who chooses the wrong one! "Emotional intelligence" is a relatively new concept, as is noting its lack. Frank Lloyd Wright was ostracized from Oak Park society for his loose morals, but he was never called defective. The architects of the last century escaped being thus branded. What about this century's? Our standards for social acceptability require us to be "interesting" beyond our inherently boring jobs; every new business book tells us that our creativity is a cultural advantage we aren't fully exploiting. But just when we recognize the need to define our worth beyond our livelihood, we are unable to earn one.

Searching for a nonvisual joke about architects reveals more than just an image problem; there is no simple punch line. I share Rachel Levitt Slade's situation: I pursued architecture in college and found easier success first as a stand-up comic and now as a marketer for the design industry. We're both square pegs in the oddly shaped and shrinking hole that is the design profession.

Do architects have an image problem? Ha! We're speaking of a profession that is harder than ever before to get into. Not finding a ready place for your creative desire gives perspective on the incongruities of the profession: the sacred cows, the shibboleths, and the faddishness of both design and its execution. Slade's rendering of Le Corbusier/The Raven's pristine-city absurdity made me laugh out loud, and that's all anyone trying to find humor in this business could ask for.

MIKE SWEENEY
*Design-product Systems*
Somerville, Massachusetts

---

**"Transforming the Lost Half-Mile"** describes the dramatic physical changes to the former industrial wasteland between the Green Line viaduct and the Zakim Bridge, which serve as elegant bookends to the promising new riverfront area. This last stretch of the Charles River also brings great potential for new urban attractions, for recreation and festivities. The missing link between the Charles River pathways and the Boston Harborwalk is finally being filled in.

What makes North Point Park so special is the location and scale of these new spaces. With four MBTA stops within walking distance, this urban waterfront green space will be easily accessible and will offer large grassy areas and lagoons with pedestrian bridges ideal for kayaking and strolling. The large building that Education First is planning will provide 4,400 square feet of restaurant space on two levels with a waterfront patio, right next to the skate park the Charles River Conservancy (CRC) is building.

This 28,000-square-foot skate park facility under the highway ramp, with bowls and streetscape features, was designed by Grindline with input from 400 local skaters. The CRC has raised $2.5 million for what will be a great amenity for athletes as well as spectators. Given its location under the ramps, the skate park will convert an area that might otherwise be an underused highway liability into an active and attractive civic asset.

The state's metropolitan park planners as well as the City of Cambridge and the New

Basin Citizen Advisory Committee, who have worked decades on this rejuvenation, deserve our gratitude for their vision and perseverance.

RENATA VON TSCHARNER
*Charles River Conservancy*
Cambridge, Massachusetts

---

**The recent "Change" issue** was a thoughtful exploration of Boston/Cambridge as an innovation center attracting the best and the brightest—a reputation we will no doubt keep as long as our universities continue spinning off new technology and start-ups, and our hospitals make us the headquarters for cutting-edge healthcare.

But a corollary issue is how we not only attract but *retain* young talent for the future. The best and brightest often come here to go to school. They often begin their entrepreneurial careers and start-ups here. And then we lose them to Silicon Valley and New York City. Why?

We need to examine our barriers to entry and retention. Affordability of housing, reliability of transit, and quality of schools are all critical factors. More important, characteristics that some of us extol as tradition, younger people consider stodgy. We have a social and professional seniority system that often takes too long for younger, more impatient talent to penetrate. New York and Silicon Valley seem more open to interesting new ideas.

Boston is a great city. We are educating more young people. We are cultivating more talent and prospects for innovation. But are we able to keep them and grow them here? If innovation and change are critical to our future, we need a further conversation about how to keep from being a talent exporter.

GEORGE BACHRACH
*Environmental League of Massachusetts*
Boston

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**The Spring "Change" issue** of *ArchitectureBoston* was one of the first in a long while I read cover to cover. I praise the guest editorial committee for focusing on the changing environment of our city and the players who are guiding their respective industries. My assumption is that the intent was to spur the design community to follow suit, yet the opportunity to drive home this parallel in the "Wide Open" panel discussion left me disheartened and wanting more. I appreciate the issues the panel addressed: re-establishing the architect's role in the longevity of the building, creating and using collaborative environments, and being entrepreneurial in pursuit of passion projects. Although many of us may be on the verge of abandoning good mother architecture, this group attempts to maintain their focus within the profession and the lofty dreams of steering it toward greener pastures—to a place where the role of the architect is no longer marginalized and the balance between quality building and sacrifice is harmoniously rectified. This is commendable.

Yet the conversation's conclusion that we should "Just do stuff" only strengthens the stereotype of Boston designers lagging behind the entrepreneurial endeavors in other fields and other cities. It is obvious that we should be "doing"; should we not hear from and discuss those who are? Is this panel really the appropriate cross-section for an entrepreneurial design culture in our city? If the goal of the DIY youth is to do, we need to hear from those who are doing and learn how to do, rather than debating what should or could be done.

JONATHAN HANAHAN
*over,under*
Boston

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We want to hear from you. Letters may be e-mailed to letters@architectureboston.com or sent to *ArchitectureBoston*, 290 Congress Street, Suite 200, Boston, MA 02110. Letters may be edited for clarity and length, and must include your name, address, and daytime telephone number. Length should not exceed 300 words.

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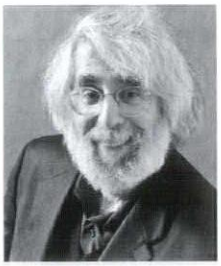
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# Contributors



## Lloyd **Schwartz**

("Boston Symphony Hall," page 28)

**Lloyd Schwartz** is a Pulitzer Prize–winning classical music critic and published poet. He is a professor of English at the University of Massachusetts/Boston, classical music editor of *The Boston Phoenix*, and a regular commentator for NPR's *Fresh Air*. His writings have appeared in *The New Yorker*, *The Atlantic*, and *The Best American Poetry*. His most recent book of poems is *Cairo Traffic* (University of Chicago Press).



PHOTO: Sarah Putnam

## Deborah **Weisgall**

("Calderwood Hall," page 29)

**Deborah Weisgall** has written for *The New York Times*, *The Atlantic*, *Esquire*, and *The New Yorker*; she has also published two novels and a memoir about her father, the composer Hugo Weisgall. Her most recent article for *ArchitectureBoston* was "Arts & Minds: Profiles in the Creative Economy" in the Fall 2009 issue.



PHOTO: Conor MacDonald



PHOTO: Conor MacDonald

## Mollica **Manandhar** AIA | Paula **Buick**

("Hospital, Heal Thyself," page 34)

**Mollica Manandhar** AIA (left) is an associate at Payette, where she has worked on multiple healthcare, research, and academic buildings. **Paula Buick** (right) is director of the Post Traumatic Stress Innovations project at MIT and former director of healthcare planning at Payette.

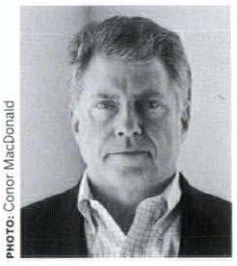
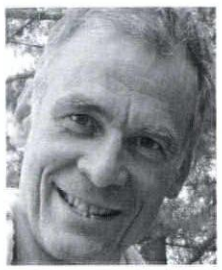


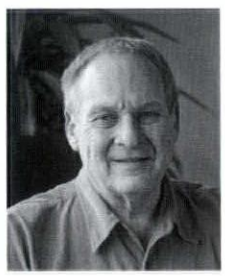
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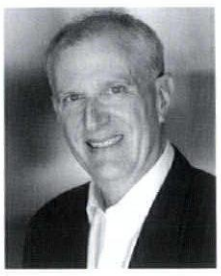


## Timothy **Foulkes** | David **Butler**

("Bring On Da Noise!" page 38)

**Timothy Foulkes** (left) is a principal consultant with Cavanaugh Tocci Associates. He consults with architects, engineers, and property managers on issues of noise and vibration control, including in theaters, auditoriums, office buildings, and courtrooms. **David Butler** (right) is a staff artist at *The Boston Globe*.





## Lewis **Spratlan** | Frederick **Peters**

("Conversation," page 48)

**Lewis Spratlan** (left) won the 2000 Pulitzer Prize in music for his opera *Life is a Dream*. He has won awards and grants from the Guggenheim Foundation and the National Endowment for the Arts. He has conducted at Tanglewood, the Yale Summer School of Music and Art, and Amherst College, where he was on the faculty until his retirement in 2006. **Frederick Peters** (right), a lapsed composer, is the board chair of New Music USA, the organization formed in late 2011 from the merger of Meet The Composer and the American Music Center.

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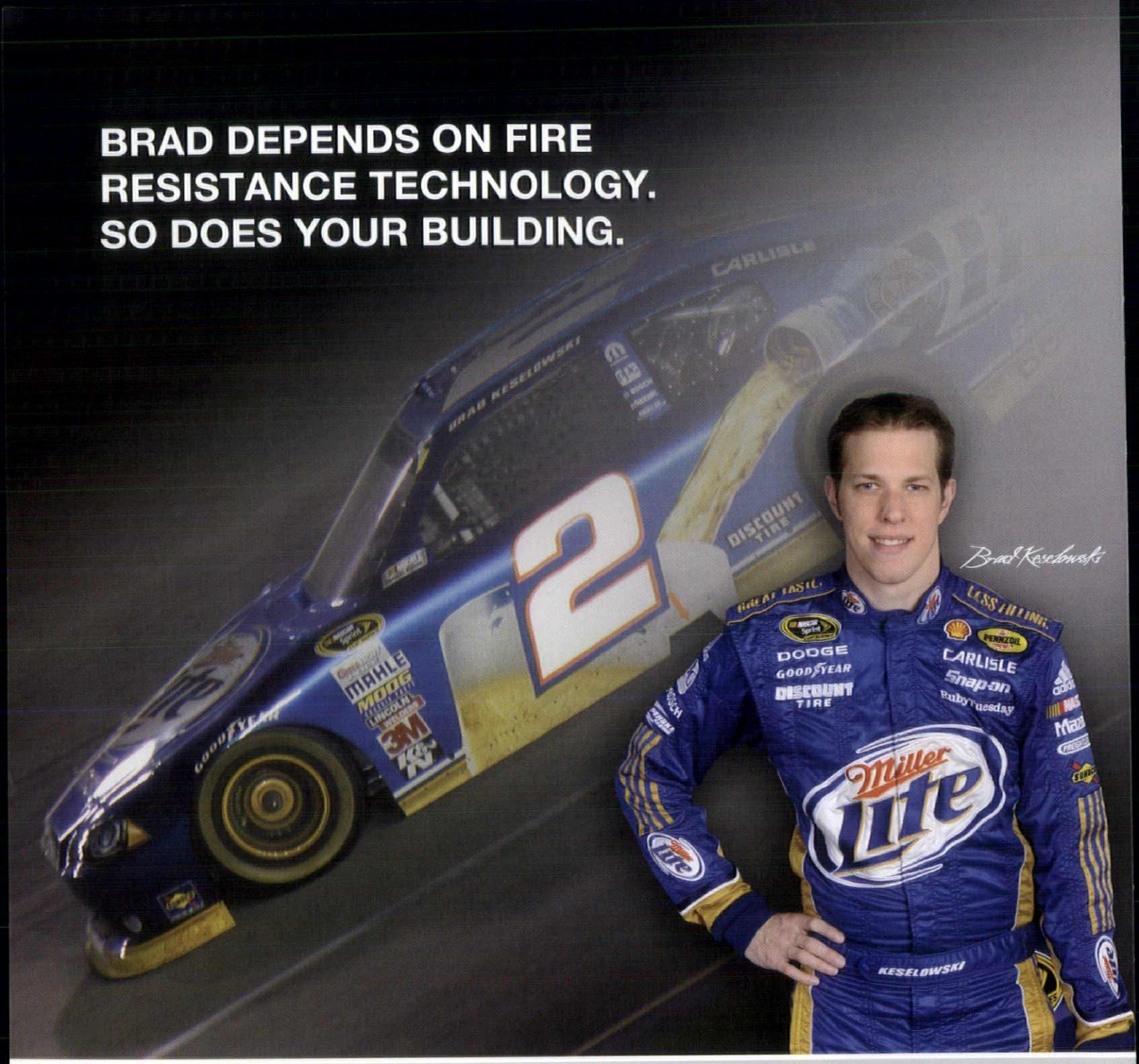
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**Gretchen Schneider** AIA is the executive director of the Community Design Resource Center of Boston and the deputy editor of *ArchitectureBoston*.

**ABOVE**
Rendering of Studio Gang Architects' *Garden in the Machine* project for Cicero, Illinois—one of the five sites of *Foreclosed*. Image courtesy Studio Gang Architects.

## Foreclosed: Rehousing the American Dream

**Museum of Modern Art**
**New York City**
February 15–August 13, 2012

**The problem is the architecture.** I'll explain.

In the summer of 2011, MoMA, inspired by the recent housing crisis, invited five interdisciplinary design teams to develop housing proposals for five inner-ring suburbs across the United States. After a series of public workshops and discussions, the five proposals came into the gallery.

*Foreclosed* is the second in an exhibition series that asks leading architects and related others to invent solutions to pressing contemporary issues. The previous show, *Rising Currents*, included an air of urgency and fresh thinking as it addressed New York City's projected sea-level rise. Ignore the architecture, and *Foreclosed* travels well-trodden ground: Increase density, provide a mix of housing sizes and types, and shrink the distance between work and home. Mixed use, as always, reigns supreme, albeit now with a community composting twist. The designs aim to provide a variety of housing opportunities for Americans at any point along the income/immigrant/household-size ladder. But when has that not been the demand of American housing?

Therein lies the problem. Since cities began to rapidly expand more than a century ago, urban thinkers have proposed transit-oriented, neighborhood-based development as the antidote, packaged in architectural wrapping appropriate to innovative thinking of the time. Obviously, we're missing something. The strongest piece on this exhibit wall is a deceptively simple ad campaign. The actual buildings of *Foreclosed* range from whimsical to indecipherable; a few might be at home in Manhattan or downtown Chicago, but none would be adopted by a suburban developer today. While we lament the lack of popular design sophistication, visitors flock to the model with blinking lights and tiny people, and miss the more important underlying ideas. We architects are left talking with ourselves, once again.

**Lucy M. Maulsby** is an assistant professor of architectural history at Northeastern University.

**RIGHT**
The Modern Poster/ Charles Scribner's Sons, New York, by William H. Bradley. Published by Charles Scribner's Sons, 1895, relief process, printed in color. Photograph © Museum of Fine Arts, Boston.

## The Allure of Japan

**Museum of Fine Arts**
**Boston**
March 24–December 31, 2012

**The American fascination** with Japan, ignited by the 1854 opening of trade relations between the two nations, was further cultivated by the availability of goods from the East in specialty shops, reproductions of Japanese buildings at World's Fairs, and Japanese objects displayed in exhibitions, including an influential display at the Museum of Fine Arts, Boston.

*The Allure of Japan* brings together a range of these objects—brightly colored advertising posters, finely wrought black and white etchings, roughly detailed woodblock prints, and luminous watercolors—from the MFA's collection to illustrate the enormous influence Japanese visual traditions had on artistic practice in America at the dawn of the 20th century. Carefully grouped works succinctly communicate how elements drawn from traditional Japanese art, such as decorative patterns, sensuous curves, flat stylized planes, bold contrast, and subject matter, influenced American art.

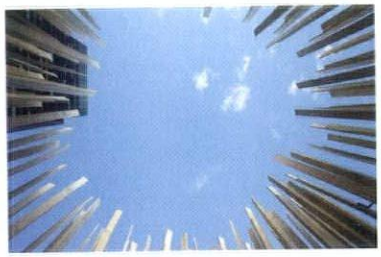
In this cross-cultural exchange, which included artists like George Mann Niedecken—best known for his collaborative work with architect Frank Lloyd Wright—lay the seeds of Modernism.



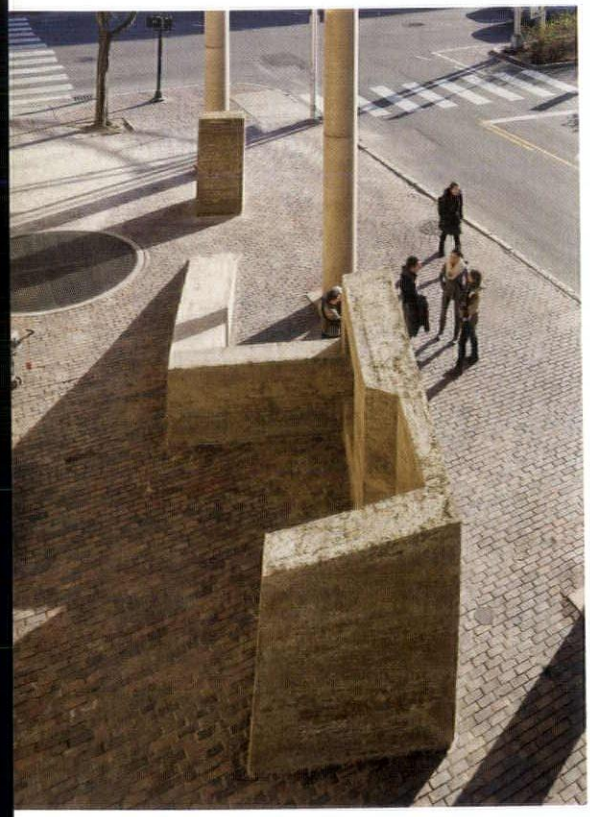
# Considered: Designed, Built

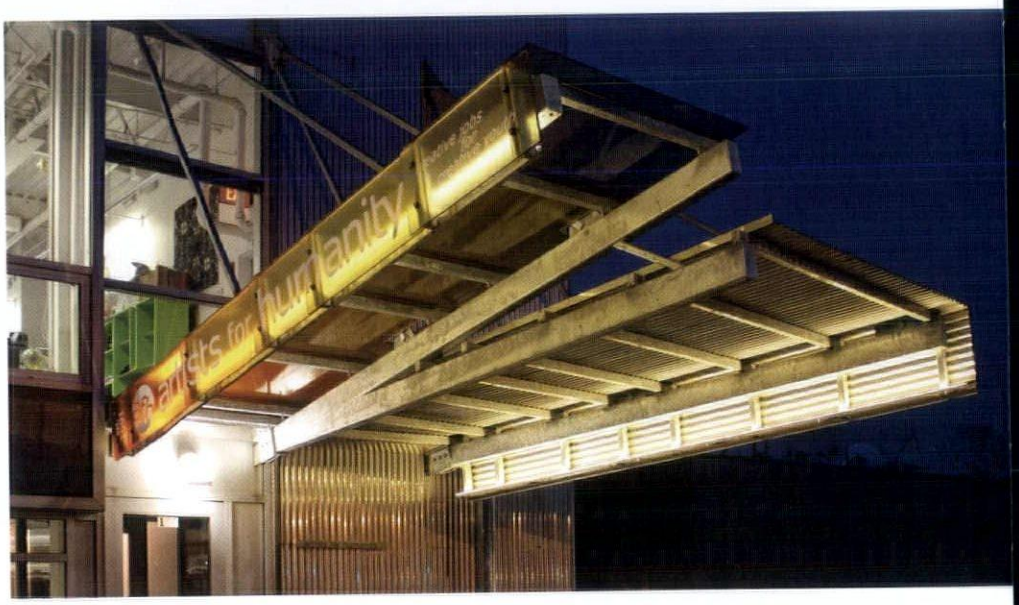
Mud, sticks, steel: the essential building blocks of construction. These photos highlight projects from the 2011–12 academic year in which students took design concepts all the way through to execution. As they grappled with the realities of budgets, site, and skill, these students explored the possibilities of a particular material, temporarily transformed a public place, or inventively served a need.

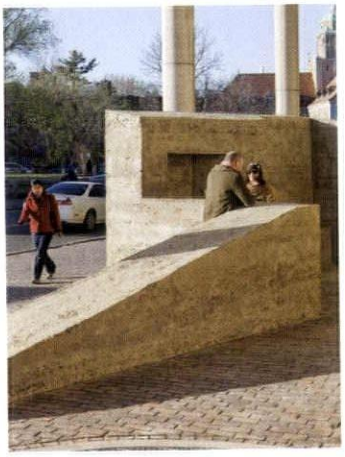
For additional photos, more projects, and full project credits, visit: www.architectureboston.com.









**CLOCKWISE FROM TOP LEFT**

*Horizon*
Wentworth Institute of Technology, installed at Atlantic Wharf, Boston, winter 2012, led by Robert Trumbour AIA, WIT faculty, photo by Chad Carr, primary materials: wood, metal pipe

*Epicenter Canopy*
Massachusetts College of Art and Design, installed at the Epicenter, Boston, fall 2011, client: Artists for Humanity, led by Sam Batchelor AIA, MassArt faculty, photo by Sam Batchelor AIA, primary materials: acrylic panels, steel

*MudWorks*
Harvard Graduate School of Design, installed on Quincy Street, Cambridge, spring 2012, led by Anna Heringer, 2012 GSD Loeb Fellow, photo by Iwan Baan, primary material: rammed earth

## Ahead: Far Out



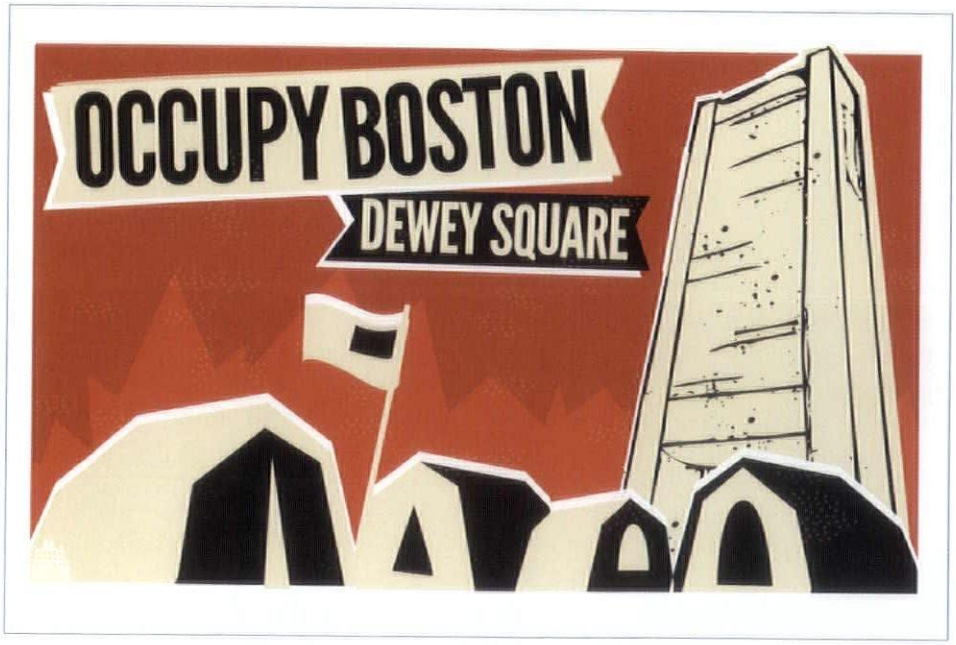
RIGHT
*Compound*, by Sopheap Pich (Singapore, 2011), to be installed as part of *Invisible Cities*. *Invisible Cities* also includes major new commissions. Courtesy MassMoCA.

**A trio of trippy summer exhibitions** promises to challenge your view. Inspired by Italo Calvino's book of the same name, *Invisible Cities* invites 10 different artists for interpretations of urban landscapes, real and imagined. Meanwhile, also at MassMoCA, Michael Oatman's large, habitable installation offers an intriguing counterpoint: a crash-landed "satellite," a "library," and a field of solar panels to explore as one muses on the fate of utopian dreams. Perhaps born of a similar spirit, Tomás Saraceno's partially transparent, partially reflective construction on the roof of the Met sets up a very different perspective of this real city. Far out, dude.

***Invisible Cities***
MASS MoCA, North Adams
April 14, 2012–March 1, 2013

***All Utopias Fell***
Michael Oatman
MASS MoCA, North Adams
April 14–November 4, 2012

***Cloud City***
Tomás Saraceno
The Metropolitan Museum of Art, New York City
May 15–November 4, 2012




## Focus: Occupy Posters

### Jesse Haley, Occupy Boston

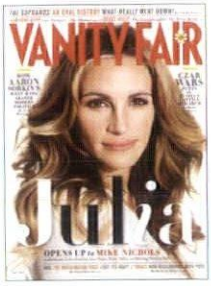
The tents are down, the plazas are swept. How do you make an intensely place-based movement live on when the places change or get left behind? To that end, Occuprint collects and publishes posters from Occupiers worldwide, aiming to make the ongoing Occupy movement "more visible in physical spaces, not just virtual ones." Many designs riff on the essential characteristics of a city, humorously quote other regime-changing events, and echo the legendary graphics of an earlier age.

See an online slideshow of selected Occupy posters at www.architectureboston.com

For more on Occuprint, or to submit your own poster, see: www.occuprint.org

For more on Jesse Haley, see: www.southendtextiles.com




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DiscoveryNews

## Covering the Issues

**Gretchen Schneider** AIA is the executive director of the Community Design Resource Center of Boston and the deputy editor of *ArchitectureBoston*.

**Home Alone...** Have you been wondering why so many small apartments are planned for the Seaport District? Today, twice as many American adults live alone as a half-century ago, and that number's growing, writes Eric Klinenberg in "The Solo Economy" (***Fortune***, February 6, 2012). According to the latest census, 38 percent of Boston households have just one occupant. And contrary to the views of some cultural critics, Klinenberg argues that most solo dwellers do so by choice, and are happy and socially active. They also spend more money than their married counterparts. Home-improvement retailers, developers, and urban planners are taking note.

**Sticks, not stones...** "Can wooden skyscrapers transform concrete jungles?" asks ***CNN.com*** (posted March 15, 2012). Vancouver, Norway, and Austria all have such towers proposed, the tallest at 20 stories. Proponents promote the environmental benefits of wood—producing concrete and steel requires tremendous amounts of energy, after all—and argue that heavy timber is actually quite resistant to fire. One architect-advocate declares that now is wood's "Eiffel Tower moment"—the time to demonstrate wood's possibility. The online comments make clear that the public remains far from convinced. But then again, the Eiffel Tower once seemed radical, too.

**Water, water everywhere...** "Venice Sinking More Than Previously Thought," reports Rossella Lorenzi for ***DiscoveryNews*** (posted March 26, 2012). New satellite data shows that as the city continues to sink, it is slowly tilting, too. This means that in this, the world's most famous urban sea-level laboratory, sidewalks will flood more frequently, the flood-protection gates (due to open in 2014) will operate more than originally anticipated, and that ideas for pumping water back into the city subsoil should be developed now. Meanwhile, ***The Atlantic Cities*** reporter John Metcalfe presents new aquatic models for urban areas closer to home, in "Mapping How the Seas Will Eat Coastal US Cities" (posted March 15, 2012). Southeast Florida; Washington, DC; New York City; and Boston face the greatest risk. The maps are interactive: plug in your ZIP code and see your fate. With a predicted seven-foot rise above high tide, 2060 Boston looks a lot like its colonial predecessor.

**Back to School...** In an unusual move, ***Design Observer*** has republished a press release. "NYC Design Schools: Catalysts for Economic Growth?" (posted March 18, 2012) promotes a report by the Manhattan-based think tank, Center for an Urban Future. The report notes that New York has twice as many design and architecture graduates as any other US city; that the number of design students is rising faster than other disciplines; and that these graduates are more likely than their peers to stay in New York and start their own businesses. Statistics can be misleading—"design" is very broadly defined, and even the report admits that Boston and Cambridge still have more architecture graduates—but the report's themes bear noting. With the Commonwealth's recent focus on the innovation economy, our design schools' contributions beg similar examination.

**Big moves...** On the 30th anniversary of its completion, Paul Goldberger pens a short love letter to Maya Lin's Vietnam Veterans Memorial in his first column as the new in-house architecture critic for ***Vanity Fair*** (April 2012). "It's still far and away the greatest memorial of modern times—the most beautiful, the most heart-wrenching, the most subtle, and the most powerful." The most controversial, too. That said, Goldberger seems to be creating a minor stir himself. After 15 years at *The New Yorker*, he's jumped ship. "Is this the end of architectural criticism for *The New Yorker*?" wonders Matt Chaban in the ***New York Observer*** (posted April 2, 2012). Once the literary home to Lewis Mumford, *The New Yorker* helped launch good writing about buildings, cities, and how design affects regular people. If *The New Yorker* no longer supports such commentary, who will?

## Ethics of the Urban

**Harvard Graduate School of Design**
**Cambridge, Massachusetts**
March 2–3, 2012

**Cities are rapidly changing.** Harvard's Graduate School of Design (GSD) has turned its attention to this issue with a series of conferences. The first, *Ecological Urbanism* (2009), considered the urban environment within the more comprehensive framework of economic, environmental, and social concerns. The second, *In the Life of Cities* (2011), looked at relationships between physical characteristics of cities and the lives they engender. *Ethics of the Urban* examined ideas of citizenship and civic engagement, memorials and public space, and social and political borders. Although the overall tone was academic, speakers from fields unrelated to design drew people from outside the GSD to discuss topics such as the Occupy movement and the National September 11 Memorial.

The Neighborhoods and Neighborliness panel, for example, brought together sociologists Robert Sampson and Loïc Wacquant with Rahul Mehrotra, chair of the GSD's Department of Urban Planning and Design, to discuss relationships between civic engagement, social structures, and place-making. Mehrotra's illustrations of projects from India, where he maintains an active architecture and urban design practice, balanced the more theoretical aspects of the discussion with concrete examples. *Artist Village*, an innovative mixed-income housing development designed by Charles Correa, incorporates traditional building styles such as low-rise housing units clustered around shared courtyards that host family and community celebrations, and construction methods that allow owners to modify the units over time. The *Community Toilets* project, designed by Mehrotra's firm for an Indian NGO, addresses the practical need for infrastructure in informal settlements and slums. It introduces solar panels as well as housing for a caretaker and responds to community concerns about safety. Both projects demonstrate how design of the built environment can improve the degree and quality of social interaction, increase equity, and create long-lasting community change.

The GSD's attention to the urban, consideration of cultural and social issues, and interest in engaging a diversity of participants is both refreshing and promising. New additions to the faculty, such as panel moderators Neil Brenner and Diane Davis, further demonstrate the school's commitment to expanding its educational curriculum to include the social dimensions of design. The more that academic institutions such as the GSD engage practitioners, other disciplines, and the community in conversations about the relationship of design and cultural values, the better they will prepare graduates to influence the cities of the future.

**Anne-Marie Lubenau** AIA is a 2011–12 Loeb Fellow at the Harvard Graduate School of Design. She led the Community Design Center of Pittsburgh for 10 years, and in June 2012, she will become the director of the Rudy Bruner Award.



# SOUNDS OF THE CITY

**From car horns to bird song, the city performs.**

Some people walk the city streets and hear a literal symphony: Think of John Cage recording the traffic noise on Sixth Avenue. Most of us absorb the city's melodies unconsciously. Researchers in England have identified the urban sounds we like most: car tires on wet pavement; the rumble of an underground train; the thump of bass spilling out of a jazz club. Other sounds are less favored. But every sound in a city has a purpose, and that is a kind of beauty. Too much manipulation is just Muzak.

# HONK!

## Take back the site

by Maury Martin

**Maury Martin** is a saxophonist and cyclist with a family medical practice in Somerville and a cofounder of the HONK! Festival.

On Columbus Day weekend in Davis Square, Somerville, most of the honking to be heard is not that of motor vehicles but the sound of 30 brass bands performing in the annual HONK! Festival. In 1996, five members of our Somerville-based Second Line Social Aid and Pleasure Society Brass Band joined up with other like-minded bands from New York and Chicago, hoping to offer an alternative to our car-centered culture in a busy city square.

Although the bands vary widely in style and mission, we share the goal of using outdoor public space not simply as a passageway from one location to another, but as an organic stage, removing the barrier between performer and listener.

The theme of the festival parade is "Reclaim the Streets for Bikes, Horns, and Feet." We believe public outdoor space should be used for music, art, and protest. Some bands have a primarily political focus, playing in support of activist causes and demonstrations for social change. Others see the act of unpredictable musical performance as a political statement in itself at a time when residents are so often cut off from the sounds of the city with iPods or acoustically sealed in their automobiles.

We are fortunate to have Davis Square as a home for our event. It has several parks, plazas, and protected spaces where bands can play simultaneously without their music overlapping or shutting down the business of the square. During the festival, a different band plays each hour at seven sites in the square. The celebration has expanded to include a parade down Massachusetts Avenue to Harvard Square, and a nighttime boat cruise on Boston Harbor.

We hoped the idea would appeal to musicians and spectators, but we certainly did not expect the revolutionary street spectacle of never-before-seen proportions that evolved. It turned out this is a movement that is far more widespread than we imagined; bands have come from as far away as Rome to be a part of the festival, and sister festivals have sprung up in Austin, Texas; Montreal; and Seattle.

Few sights are more satisfying to a street musician than seeing the shock, amazement, and then—with luck—the smile from a traveler emerging from the subway station to find a 20-piece brass band playing a New Orleans parade tune. The city provides the soundstage that makes this possible.

# BANG!



## The streets have ears

by Michael Jonas

**Michael Jonas** is executive editor of *CommonWealth* magazine and a longtime Dorchester resident.

In any noisy urban setting, "there are a lot of things that go bump," says Boston police officer Matthew Hogardt. His concern is whether that bump is a gunshot—an unfortunate reality in the soundtrack of the city.

Hogardt's job is made considerably easier by ShotSpotter, a sound-detection system the police department deployed five years ago. It can distinguish gunfire from firecrackers, vehicle backfires, and other noises of the night, and pinpoint its location to within several feet. With about 120 sensors spread across a 6.2-square-mile swath of Boston where gunfire is most common—sections of Mattapan, Roxbury, Dorchester, Jamaica Plain, and the South End—the ShotSpotter system can alert police dispatchers within two seconds to the location and likely cause of a "detectable incident."

Hogardt, who helps oversee the system at police headquarters, says it means police cars are dispatched more quickly to the scene of gunfire, which can lead to faster emergency medical help for victims. The system's unquestioned benefit comes in the 20 percent of all shootings for which the department never receives a 911 call. ShotSpotter is also indispensable for steering police to the location of shell casings and other ballistic evidence.

The system, developed by the California-based company SST Inc., works much the same as satellite GPS technology: At least three sensors must detect possible gunfire for the system to "triangulate" the location. But though it relies on very precise algorithms, ShotSpotter must also deal with the very imprecise vagaries of place.

Boston, in fact, is one of the most challenging of the 64 cities where the system is in use, says James Beldock, senior vice president for products and business development at ShotSpotter. Boston's concentration of brick buildings, especially in Roxbury and the South End, as well as the much greater density of buildings overall, give it "very low acoustic propagation," says Beldock. In other words, sounds are more muted here. "The sound propagation characteristics of Boston are dramatically different" than most US cities, he says. "The gunshot is the same; what's changed is the sound that gun makes when it travels through the architectural environment."

Some Boston neighborhoods pose particular complications. "There are a lot of valleys in the South End, speaking acoustically," says Hogardt. With its grid of contiguous Victorian row houses—the largest such neighborhood in the country—a sound that travels loudly down one of the South End's main thoroughfares might not register around the corner on its narrower cross streets. To make up for the city's diminished "sound propagation," the ShotSpotter company has added 15 to 20 percent more sensors than in its standard deployment, and 50 percent more than cities with the best sound propagation. Perhaps not coincidentally, San Francisco, often paired with Boston as one of the country's most livable, walkable cities, is the only other city using ShotSpotter that has such low sound propagation, says Beldock.

Long known for the taciturn disposition of its citizenry, Boston turns out to be similarly reserved when it comes to relaying all the sounds of the city.

## Why ringtones are social turnoffs

by Richard Garver

Ringing cell phones and cell phone conversations in public places provoke almost universal annoyance, sometimes even rage. We think of them as rude, intrusive, the privatizing of public space. But why? At a rational level, a conversation on a cell phone conducted by a person sitting next to us in a restaurant is no different from the same conversation carried on face to face. But we don't experience them in the same way at all.

The reason may lie in the revelations of contemporary psychologists such as Daniel Kahneman, author of the best-selling *Thinking, Fast and Slow*. He has demonstrated that our minds function in two distinct modes: one unconscious and intuitive; the other conscious and rational. Our intuitive system unconsciously guides us through routine social encounters by taking in the expressions, tones of voice, appearances and activities of those in our vicinity; associating these perceptions with stored images and experiences; and making guesses about the interactions to come. Simultaneously, we unconsciously emit our own facial expressions, body language, and voices that communicate our social identities and intentions.

When we detect uncomfortable or risky situations or sense attractive opportunities, however, we replace this effortless process with a more taxing one of deliberate, rational calculation.

A cell phone conversation puts us in tension. Although our rational system can't produce a convincing objection, our intuitive system is offended that the person on the phone, tuned to a virtual space we can't enter, has opted out of the one we share. On the sidewalk, these people don't read the messages our eyes and bodies unconsciously send about whether we intend to pass to the left or right, because they have directed their social signal receptors elsewhere.

Our pique increases when the voices are louder and perhaps have a different timbre than others around us, because the volume shows us they are not tuned to our shared surroundings but to a virtual connection instead. In short, the annoyance cell phone conversations create does not result from a lack of courtesy—a concept situated in our rational mind—but from the perception that the person on the phone has put himself beyond the mental processes through which we expect to navigate social space.

Perhaps when Kahneman's concept of our two distinct operating systems is more widely shared, custodians of shared spaces, such as restaurants or railroad cars, will be better prepared to decide whether to treat cell phone conversations as within our rights—a construct from our rational system—or as behavior that offends our unconscious mind.

**Richard Garver,** who was a senior official at the Boston Redevelopment Authority for more than three decades, is currently pursuing projects concerned with the area's history.



# SHHHH!

## Murmur and hum

by William Rawn FAIA and Clifford Gayley AIA

**William Rawn** FAIA and **Clifford Gayley** AIA are design principals at William Rawn Associates, architects of the new Cambridge Public Library.

When Susan Flannery, the director of the Cambridge Public Library, hired our team for the new library, she said clearly and forcefully: "This building should first and foremost be about the book." Susan knows full well that the book is evolving in our digital age, but she wanted to be certain the building was committed to the opportunities that are enhanced by increased access to all forms of information.

At the same time, Susan expressed the hope that a library could also serve as a town common, that place where the whole city comes together to celebrate its civic spirit. That can most effectively happen in the atmosphere of the book, particularly in a diverse and highly motivated city such as Cambridge.

For our team, this is an inspiring view of a library, at a social level, a civic level. But as a place of study and concentration, that goal naturally raises questions of noise: of the power of sound and whether it leads to distraction. Susan was adamant that the new library not be a place characterized by the stern admonition "Hush!" so often associated with libraries, but a place that welcomes the sounds of an engaged community. For a civic space, the sound of murmur can be welcoming, suggesting a sense of joy coming from the connections of community.

This question of sound influenced our design of the Cambridge Public Library at many levels: the organization of the building as a whole; the organization of each of its three main floors; even specific spatial adjacencies. Although the question of noise in a library is a broad one, its complexity can be captured in a comparison of this library's two very different reading rooms.

The new reading room is placed near all the comings and goings of the entry, along the south-facing "double-skin curtain wall" with its celebration of sustainability and its close connection to the park outside. Between 1,600 and 2,000 patrons visit the library each day; it is naturally a place of activity. Chairs move closer to or farther from the window; people multitask with book, computer, and yes, food; people greet one another. It has become a destination in the city where all generations intermingle, even the twenty-somethings, a notoriously elusive patron group for libraries. It is not particularly quiet; it is a place with a murmur.

At the same time, the new library connects to the original 1889 Van Brunt building with its more formal reading room, fully restored to its original grandeur by Ann Beha Architects. A tall room with very tall shelves and small clerestory windows, the restored reading room is marked by dark wood, big tables, and even an apse at one end. It has become, by its own volition, the Very Quiet Reading Room. There are no signs about noise, no reminders from the librarian. The citizenry simply have chosen to make it a quiet place, a place of self-regulated hush, only steps from the very active, noise-filled teen room.

This is as it should be. A building of the book. A building that is town common. That place of rubbing shoulders, of visual *and* verbal interaction—all done at a controlled decibel level but certainly not in absolute quiet. In Cambridge, that has been achieved with a minimum of fuss, by the natural evolution of the space.

## Heaven and nature sing

by Jay Wickersham FAIA

A May morning in Mount Auburn Cemetery. I'm sidling between the tombstones, eyes aloft, binoculars ready, scanning a tree's branches, trying to locate the quick, restless motions of a 4-inch-long bird whose song I've just heard.

Of all the birds that can be seen in Mount Auburn during the spring migration—thrushes and orioles, owls and woodpeckers, herons and hummingbirds—the most beautiful, and the most maddening, are the tiny warblers. There are more than 30 different kinds of warblers in New England, and their names indicate the vividness and variety of their plumage: Cerulean, Chestnut-sided, Yellow-rumped, Black-throated Green, Redstart.

But much of bird watching is actually bird listening; and not many warblers possess melodious, easily remembered songs. As the British ornithologist James Fisher wrote: "Few of them really warble; their sounds buzz and tinkle, slur and twitter, stutter and trill." To make it worse, the peak of the warbler migration hits just as the trees are leafing out, so you rarely get a long, unobstructed view of the bird you're trying to identify, to match up its appearance with its song.

What's a bird watcher to do? I used to have a recording that accompanied Roger Tory Peterson's field guide. Early in our marriage, my wife woke up one morning with the hazy impression that birds had somehow gotten into our house overnight. She came downstairs to find our cat stalking the stereo speakers, while I listened solemnly to the difference between the songs of the Blue-winged and Golden-winged Warblers.

Now, instead of recordings, I've gone back to the mnemonic phrases taught to me by my bird watching grandmother when I was eight years old. Laugh if you want, but I still find it useful to believe that the Yellow Warbler sings "Sweet, sweet, sweet, yessirree!" that the Black-throated Green drawls "Trees, trees, murmuring trees," and that the Chestnut-sided confidently announces "I wish to see Miss Beecher."

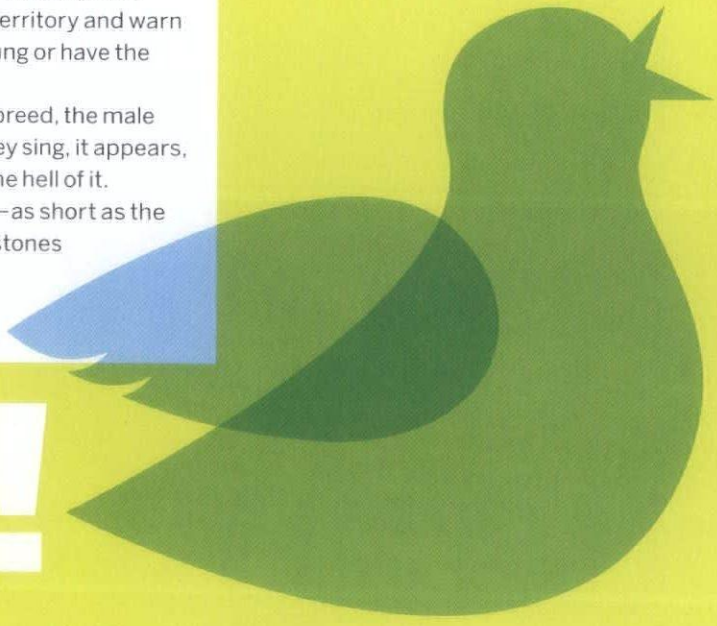
Why do warblers and other birds sing during migration, anyway? After 40 years of bird watching, it wasn't until I started writing this essay that I asked the question.

Scientists have found that once male warblers arrive on their breeding grounds, they sing two different versions of their songs. Courtship brings out the full-blown, "operatic" rendition to attract a female with whom they will form a monogamous bond (though one that lasts only a single breeding season). And then there's a property-rights version of the song, used to mark territory and warn off other males, who might try to steal food intended for their young or have the hots for their mates.

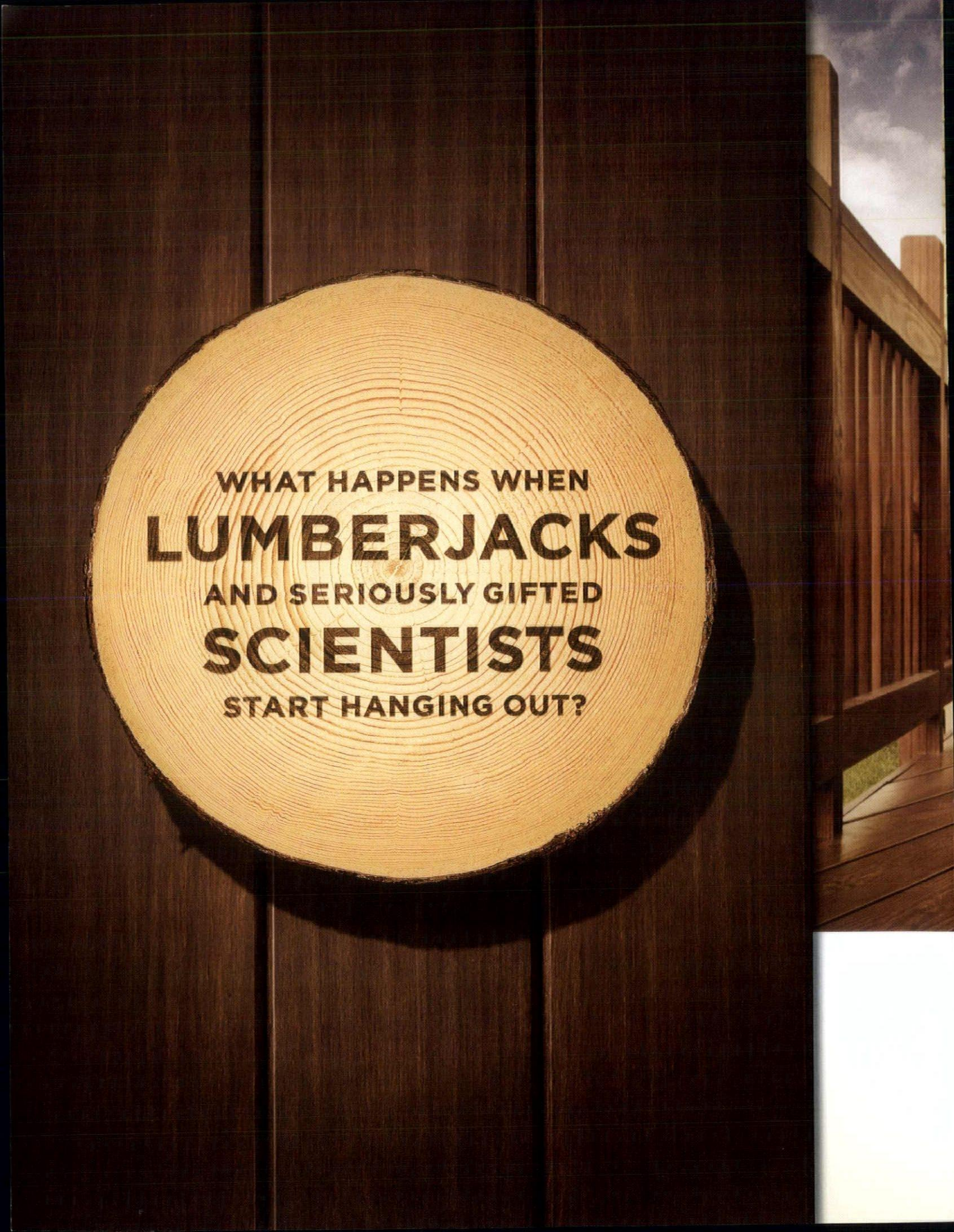
But on migration in Mount Auburn, where few of them stop to breed, the male warblers are still bachelors—irresponsible and property-less. They sing, it appears, as a kind of rehearsal. They're singing in the shower, singing for the hell of it.

I'm glad. The life of a warbler is very short, two or three years—as short as the lives of so many 19th-century infants, whose pathetic little headstones sprinkle the lawns of Mount Auburn. Let them sing.

**Jay Wickersham** FAIA is a partner in the Cambridge, Massachusetts, law firm Noble & Wickersham. He teaches courses in the history and ethics of architectural practice at the Harvard Graduate School of Design. He is an avid birder.



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# Boston Symphony Hall

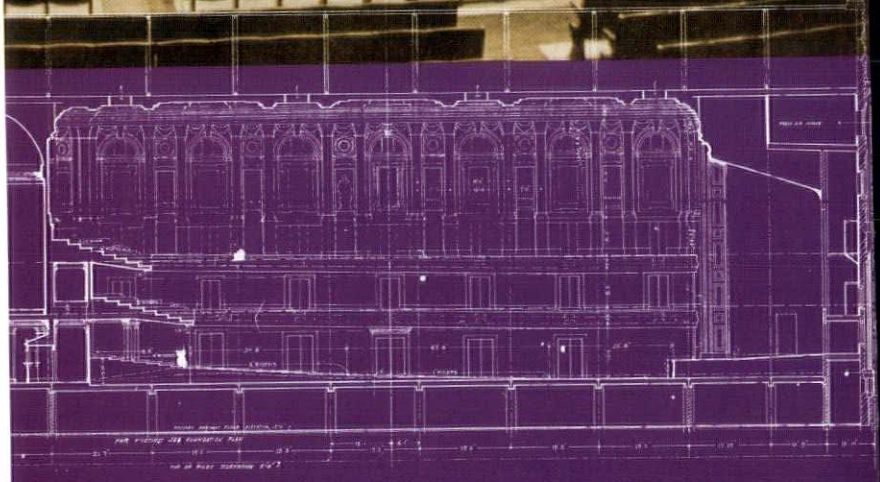
## The birth of architectural acoustics

**by Lloyd Schwartz**

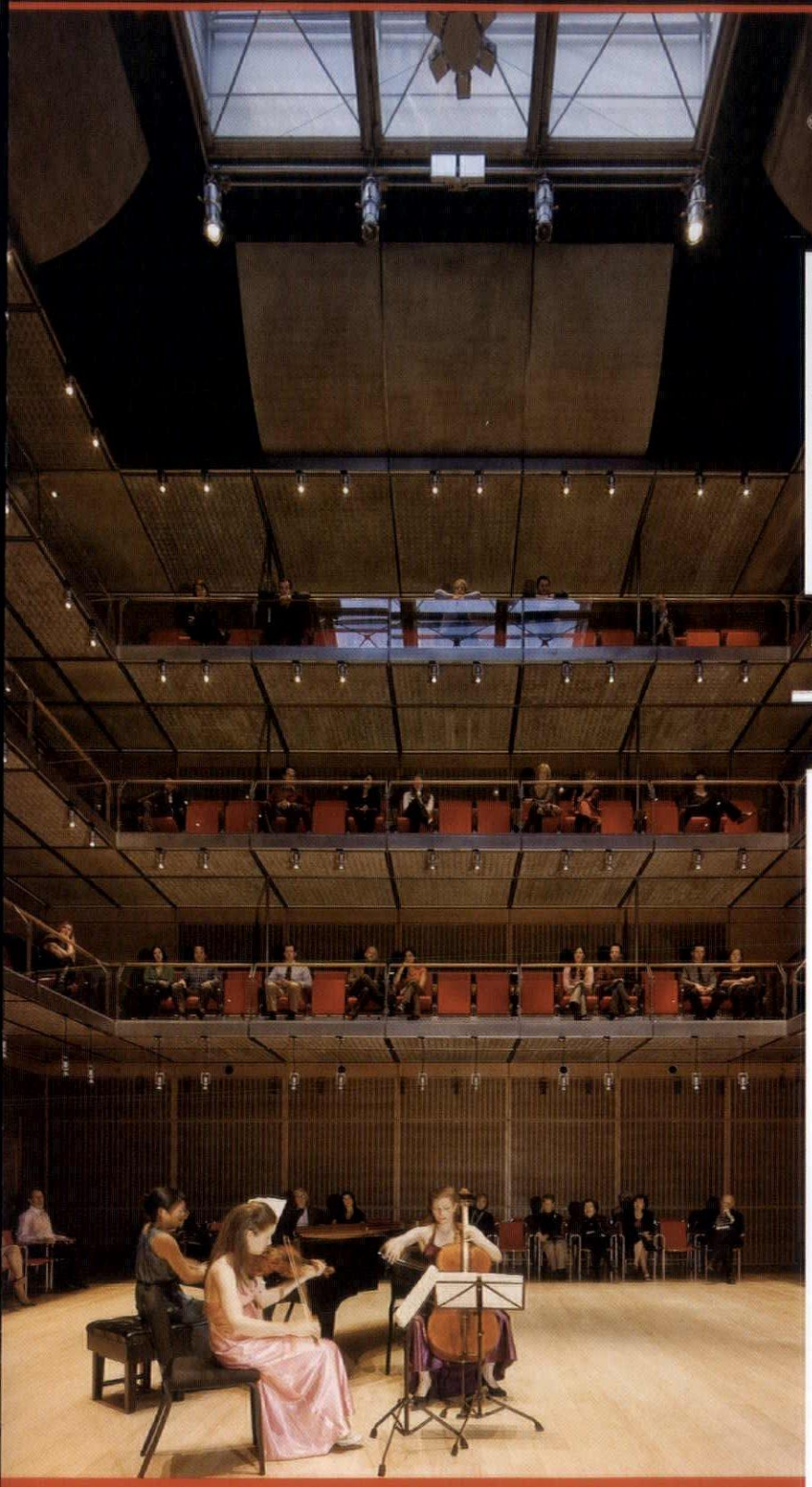
**I've been a music critic in Boston for 36 years** and wouldn't have it any other way. There may be more going on in New York; Los Angeles may have more glamour; Cleveland and Chicago have symphony orchestras of comparable quality to the Boston Symphony Orchestra; and San Francisco and even Houston have more opera. Still, I wouldn't have it any other way. Partly because there are so many dedicated Boston musicians who play on such a consistently high level but also because at least three of Boston's major concert venues make music such a pleasure to hear, and one of them—Symphony Hall—is widely regarded as one of the great concert halls in the world.

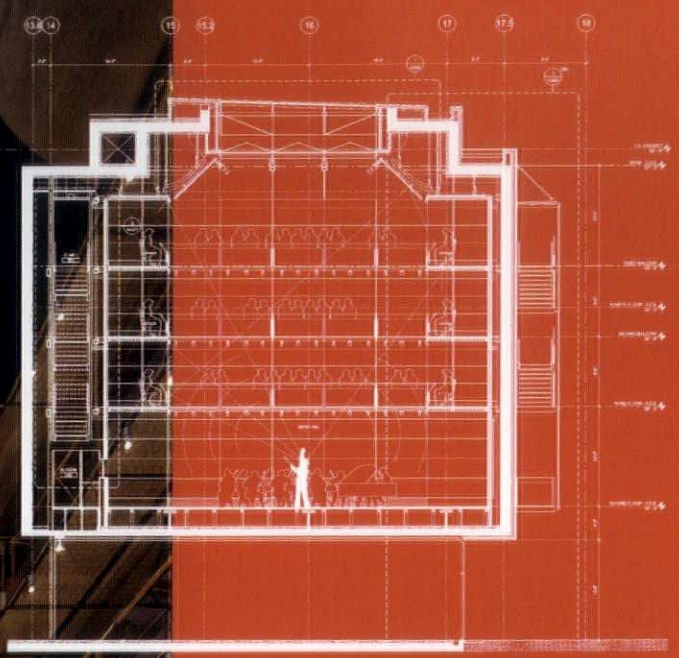
Acoustics is a mysterious science; maybe more mystery than science. One of our best concert halls, the midsized Jordan Hall at the New England Conservatory, underwent an expensive restoration

CONTINUED ON PAGE 30



**ABOVE**
An early view of the interior of the Symphony Hall auditorium taken before all the statues were arranged in the niches and showing an empty hall with orchestra risers arranged on the stage. Courtesy the Boston Symphony Orchestra Archives.





**ABOVE**
A stage-level view of Calderwood Hall. Photography © Nic Lehoux/Renzo Piano Building Workshop.

# Calderwood Hall

## A room that's tuned like a piano

**by Deborah Weisgall**

**When I was much younger and much smaller,** my favorite place to listen to music was under the piano while my father was playing. Beneath the long triangular box, in the shelter of the instrument's gold metal undercarriage, sound turned physical. It vibrated in my ears and teeth and bones: thundering bass, the mellow notes of those octaves above and below middle C within the range of the voice, sweet softs and terrifying louds. Bach, Beethoven, Schubert, Britten, Berg: I *felt* that music.

Calderwood Hall, the magical new concert space that is part of Renzo Piano's addition to the Isabella Stewart Gardner Museum, comes close to replicating that intimacy. The room, which holds only 300 people, looks like the inside of a piano, with its walls of laser-cut oak, its exposed metal fittings, and its seats upholstered in the red of a piano's felts. During

CONTINUED ON PAGE 32

and cleaning in 1995, and although great care was taken not to change anything acoustically, the immediate results were disastrous. The warm, intimate sound was suddenly too bright and too hot. Brasses on the stage sounded as if they were coming from behind the audience. Every turn of a page in anyone's program book could be heard loud and clear. My joke was that I thought that the Conservatory had paid to have the notorious cement slab that had been discovered under the stage at Carnegie Hall imported to Boston.

What went wrong when there were so few changes besides new seats and fresh paint? The cause may have been the paint itself. Not as porous as the original paint on the rear walls, the new paint may have created an intractably hard surface that reflected sound without absorbing any. Within a year, the rear walls were covered with white felt, and suddenly Jordan Hall sounded more like its beautiful old self.

## Sabine's "Magic Formula"

$$RT60 = 0.161V/Sa$$

Where RT60 is the time it takes for the sound level to decay by 60 decibels after it has stopped, V is the volume of the room, S is the absorbing surface area and a is the normalized acoustic absorbency of the room's surfaces (0 is a perfect reflector; 1, a perfect absorber).

Opening night, in July 1994, at the elegant new Seiji Ozawa Hall at Tanglewood, there was another acoustical mishap, though one of the world's most distinguished acousticians, Lawrence Kirkegaard, had supervised. Yo-Yo Ma was playing the world premiere of the John Williams *Cello Concerto*. But you could barely hear the cello! That hall had an array of movable ceiling baffles, and it took a season to figure out how to use them optimally. Again, the stage wall was covered with felt (this time red). And since then, the sound has been more than satisfactory for an open-air venue.

But Symphony Hall is another story. In this temple of art, with its traditional "shoebox" shape, its coffered ceiling and faux columns, its niches with 16 plaster casts of classical sculptures—does every fig leaf help deflect and disperse the sound?—its latticed and velvet-covered balcony railing, its wooden floors and leather seats, and its 4,800-pipe Aeolian-Skinner organ (installed in 1949 and recently restored), the sound is magical, warm, and vibrant. You can clearly hear the softest pianissimo, the most delicate pizzicato. And its current superb brass section, which for years seemed coarse and blaring, has acquired a new burnished depth along with its familiar power. Everything blooms! Everything *sounds*!

A conductor like Seiji Ozawa, who wanted the sections to blend into a rich undifferentiated tapestry, could get the orchestra to produce that blend. Other conductors, such as Pierre Boulez or James Levine, who like to bring out more contrast between instrumental sections and individual instruments, giving the variegated colors of the instruments more dimensionality and direction, could do that, too.

One of the innovations for which I especially admired Levine was his decision to go back to an 18th- and 19th-century seating plan, dividing the first and second violin sections antiphonally, on opposite sides of the stage, rather than keeping both sections together, which makes their differences (question and answer, call and response: true stereo) essentially inaudible. This seating plan added a new (old) spaciousness to the sonic textures. I now miss it when guest conductors revert to the previous plan, which is easier to conduct.

Symphony Hall opened on October 15, 1900. Its architects were the distinguished firm of McKim, Mead, and White, who invited a young Harvard physics professor, Wallace Clement Sabine, possibly because of some calculations he had done for Harvard's Fogg Museum, to advise them about acoustics. His advice is now considered the first truly "scientific" approach to concert-hall acoustics: the "birth of architectural acoustics."

Sabine seemed to have figured out what acoustician Robert Berens (who worked on the recent refurbishment of Symphony Hall) calls the "magic formula" for the effective absorption and reverberation of sound: neither too dry (for lack of reverberation) nor too echoey. As he explained it to me, the sound produced on the stage not only goes directly into the hall but also bounces off everything in sight and earshot—side and rear walls and ceiling—at minutely different times. That combination—the magic formula for absorption and reverberation—is what creates the overall hearing experience. And since Symphony Hall was one of the first major buildings to be fireproofed, Berens added, the brick and masonry reflect a lot of bass better than a frame building would.

But despite its consistent acoustical qualities, Symphony Hall doesn't have a single monolithic sound. The experience of the music can actually be quite different in different parts of the hall. There are people who wouldn't sit anywhere but in the back of the second balcony or close to the proscenium in the first balcony or in row W on the floor. I first started going to the BSO as the guest of an elderly friend whose longtime subscription was in Row B of the second balcony, just left of center. I was enthralled. The orchestra looked a mile away, and yet I felt swaddled by the sound. Nothing on my hi-fi ever sounded as voluptuous or brilliant.

When I first started reviewing, my press tickets were

in Row M, just off the right-center aisle. I could locate where every sound was coming from, but I also felt that I was hearing more individual instruments than the full ensemble. And I couldn't see who was playing, which made it hard to praise (or criticize) the orchestral soloists.

My choice seats now are on the side of the first balcony, fairly close to the stage. I can see who's playing, and the sound of the orchestra seems at its most glorious, as if it's aimed directly at me, without hurting my ears even at the highest volumes. Yet whenever I have a floor seat or a seat in the center of the balcony, I also love the fresh experience.

The only place I would not choose to sit is in the back of the orchestra section, under the overhang of the first balcony. It's not true that there are no bad seats at Symphony Hall. These are the cheap seats that are not worth the price of admission because so much of the sound is cut off. You keep wanting to turn up the volume, but of course there's no dial.

And while Symphony Hall is a magnificent place for an orchestra, it's really too cavernous for chamber music, and some solo singers, even opera stars, can have a hard time being heard over an orchestra. Yet some singers can be electrifying, as when Barbara Cook ends one of her concerts singing without a microphone, and even her slightest whisper fills the hall.

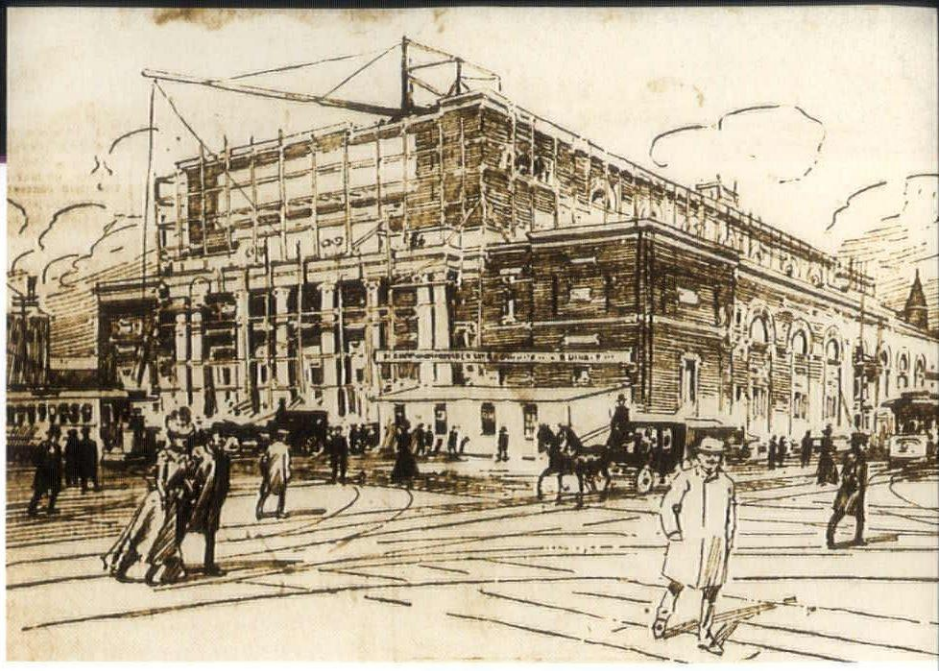
Berens said he did a lot of measuring in acoustical test chambers in the process of replacing the decaying stage floor and the old leather chair cushions with softer new ones; opening the shutters of the hall's 14 semicircular clerestory windows, which had been closed since World War II, now letting in daylight and starlight; and restoring the organ. He regards the changes we can "hear" as not only physical but also psychological. If the hall is visibly brighter, we also seem to hear a brighter sound. But he also acknowledges that with the routine maintenance of the 100-year-old stage floor, there had developed "a gross lack of uniformity. Parts of the floor were loose, parts deteriorating from aging varnish or the spit of brass players. The changes," he says, however minimal, "are going to be perceived primarily by cellists and bassists, whose instruments make direct contact with the wooden floor." And the greater uniformity of response across the floor means fewer "sweet spots."

"The old floor," BSO bassist James Orleans told me, "created a magnificent resonating chamber beneath our instruments, and one felt the floor responding as if it were a part of the aged instrument. Since the new flooring was installed, we do not get the same intensity of feedback from the floor." Orleans says he once suggested collecting, storing, and spot-repairing the aged flooring wood to work into the new floor, rather the way violin makers incorporate old wood to make new instruments more responsive. "Evidently, that idea was not feasible," he says. Orleans agrees with Berens that "the bassists perhaps notice the differences the floor has made more than anyone on the stage. I miss the old floor."

Replacing the old seats also required a lot of testing. Berens's only regret (and I've been noticing this problem, too) is that the half-inch of thicker padding on those hard old seats has resulted in a more precarious "tipping point," so that more empty seats crash down during a performance when the hall is not full. Some minimal padding under the seats might be called for.

The great acoustics can actually be a problem for the musicians themselves. Another BSO player, while admiring the "glowing warmth, the resonance and extraordinary tone the hall produces, both onstage and for the audience," also acknowledged that there was an occasional disadvantage to this very attribute. "Hearing what one's colleagues are playing," this player writes, "can be rather more difficult than in a slightly drier acoustic. One has to be very careful to play at the right time because other players' note-beginnings and -endings are rendered somewhat diffuse. The lack of sharp clarity and immediacy can sometimes hurt ensemble. Naturally, the farther apart the musicians are, the more difficult the problem becomes. Any such doubt might be transformed into a lack of conviction in making an entrance."

Musicians obviously don't play only by looking at the conductor, though a conductor with a clear and decisive beat can help immeasurably. Most musicians will probably agree with my anonymous player that tight ensemble is not the most crucial element in all repertoire. The treasured resonance of the hall masks most of these problems anyway. I haven't heard of a single musician who is ready to trade Symphony Hall for any other concert venue. And there's at least one grateful listener who wouldn't, either. ■



**ABOVE**
A sketch of the construction of Symphony Hall. Published in *The Boston Herald*, March 1, 1900. Courtesy the Boston Symphony Orchestra Archives.

**FOR MORE INFORMATION**
For more historic photos, visit: www.architectureboston.com

concerts involving a piano, the Steinway on the floor, its lid removed and its workings exposed, illustrates the resemblance.

It is both elegant and raw. A concrete shell surrounds the wooden hall, much the way the metal casing of a piano supports its strings and soundboard. On the ground floor, two rows of seats surround a floor of unvarnished Alaskan cedar, which rides a foot above the concrete. All that separates the audience from the stage is the darker wood along the perimeter, where the chairs are placed.

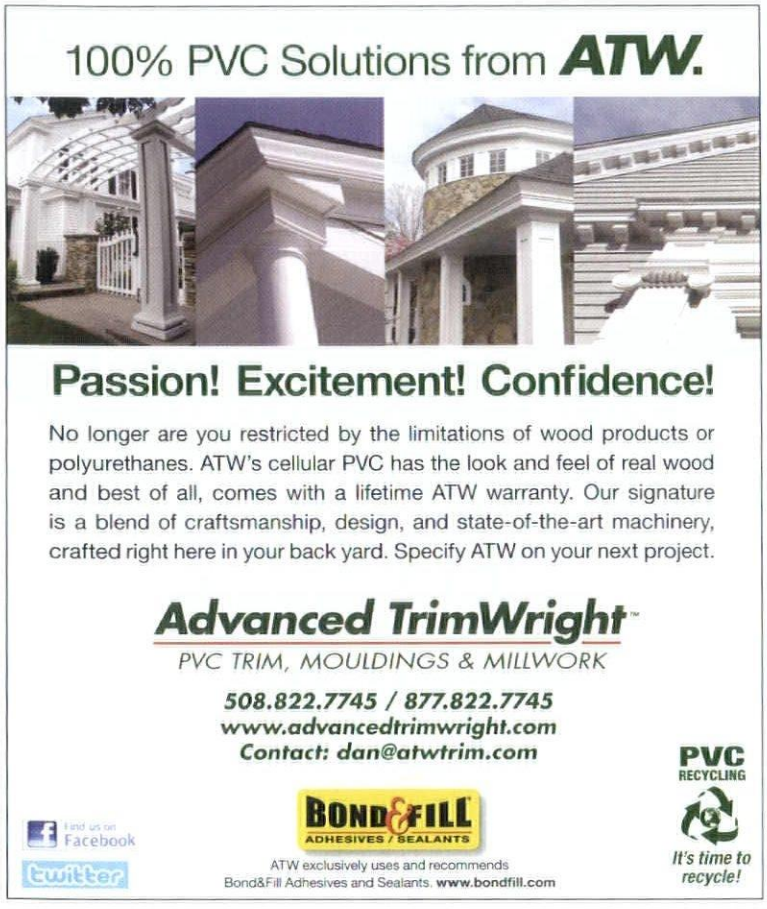
Three balconies rise on all four sides of the hall; each holds a single row of seats. In front of the seats glass panels tilt slightly outward to baffle sound, and above them floats a thin wooden railing. Depending on where you sit, you can look down on the hands of a pianist, watch a bow cross a violin's strings, read a flutist's score. And every member of the audience can see almost everybody else.

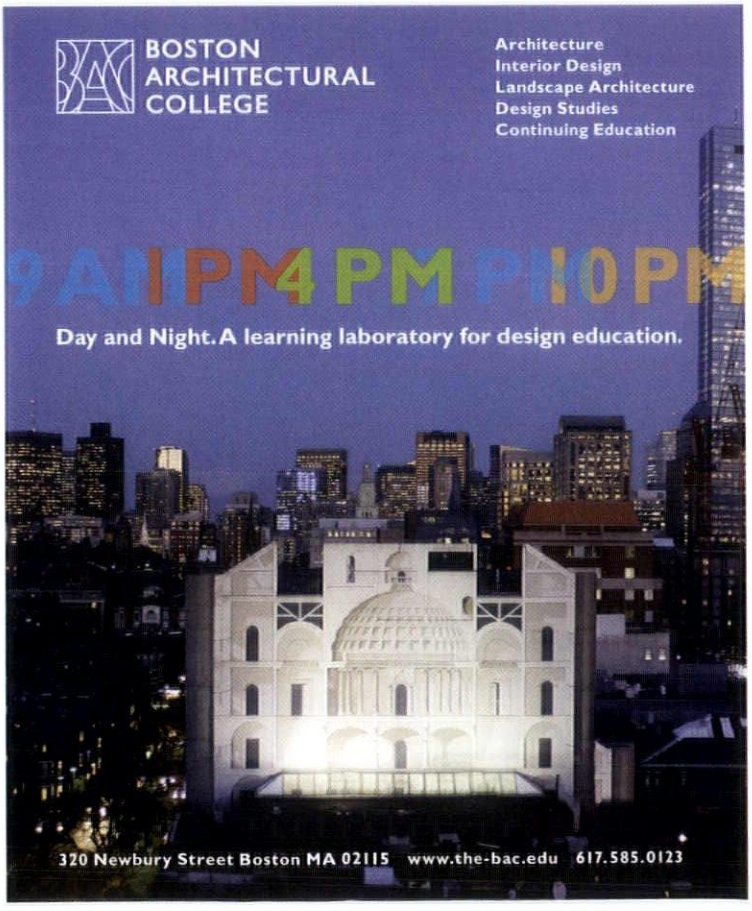
Renzo Piano came up with this design after the museum's director, Anne Hawley, and its music director, Scott Nickrenz, had rejected three earlier, more conventional plans. Hawley gives Piano great credit for "working with the messy process" at the Gardner. Normally, in a project such as this, the architect communicates with one person. But Hawley asked that her staff and some trustees be involved firsthand in the decision-making process. "We rejected plans," she says, "but we never changed what he designed after we accepted one." They never tinkered; they never diluted.

At Nickrenz's urging, Piano worked with Yasuhisa Toyota, who had designed the acoustics for Frank Gehry's Walt Disney Hall in Los Angeles and the New World Center in Miami. Nickrenz wanted the hall to function like an 18th-century horseshoe-shaped theater, which, he says, allows the audience "to share in the performance." And he didn't want a stage.

In the beginning of the design process, Piano and Toyota were not entirely conscious of the way the hall echoed the Venetian arcaded courtyard at the heart of the Gardner. "It's never clear in the beginning; in the beginning, it was more about sound," Piano told me. They began to play with those connections, roofing the hall with a skylight like the one that covers the courtyard, turning the courtyard's solid walls into continuous balconies that make the tiers of seats transparent.

This transparency has a psychological aspect, too; it gives the addition a kind of through-the-looking-glass quality. A glass-walled lounge feels like a mid-20th-

century Modernist house, and it's called a living room. As with the original Gardner, the question arises: Is this space public or private? The new structure also erases distinctions between inside and outside. Sometimes it feels precarious. What if your foot slides though one of the steps? What if you fall under the railing from one of the balcony seats and bounce off the piano strings?

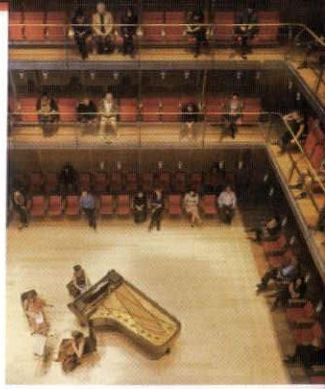
Precariousness, of course, is an illusion, but it acts as a prelude, setting the mood for the hall and the music. In this place, only the elemental phenomenon of performing separates musicians from audience. The musicians seem like ordinary people as they walk into the hall from a doorway in the corner, as if they are entering a living room. When they begin to play, they are transformed: They inhabit a heightened world, only 10 feet away from us.

The back leg of the piano stands over one of the floor's supporting beams. The floor vibrates; the room vibrates. "The sound is clear and balanced," says Nicholas Kitchen, the first violinist of the Borromeo Quartet, which took part in acoustic testing and has performed there. "In a concert, you feel it's individuals in the audience you're interacting with, not an undifferentiated mass. It's not what we're accustomed to. It's a wonderful sensation."

And those of us in the audience can hear every nuance, the last whisper of a violin's fading pianissimo, a cellist's anticipatory breath, the harmonics of the piano strings. We can hear the squeak of a performer's rubber-soled shoes, the percussion of a dropped program in the third balcony. "The sound is very direct, and everything is exposed; it's immediate," Toyota said to me. "There is a visual intimacy and an acoustical intimacy."

The clarity of sound makes it difficult to cover mistakes. Because the sound cannot be directional, it's hard to keep a lid on a piano, which means that pianists have to adjust their playing. But every new concert hall takes getting used to. "It is like a musical instrument," Piano says. "You have to tune it. You need time to learn it." Toyota explains: "You need patience. Musicians are different. How do they play? How do they hear? And the audience has to learn, too. This is a unique place."

I've sat on the ground floor and in the balconies, I've been beside the music and over it. Calderwood Hall engages us in that visceral way. We can touch the music here, we can see it, and we are changed. Watching one another, watching the musicians, we become performers, too. At the end of a concert, applause spills over the balconies like a waterfall, flooding the space with our noise. Artists and audience, we are in this together. ■



**ABOVE**
Calderwood's Steinway piano, with its lid removed. Photography © Nic Lehoux/Renzo Piano Building Workshop


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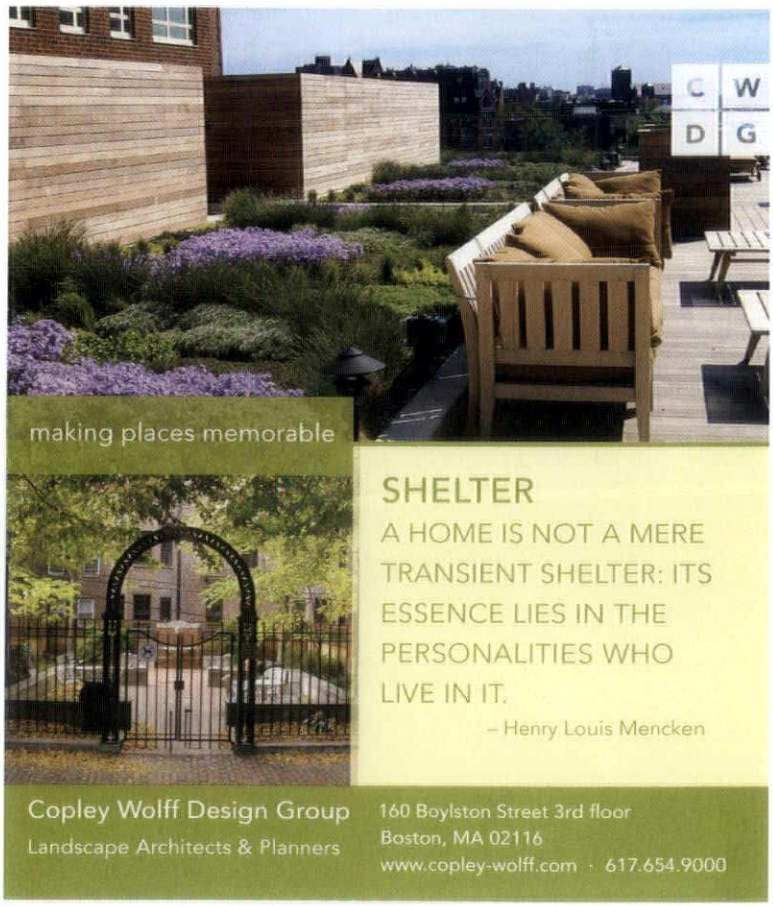
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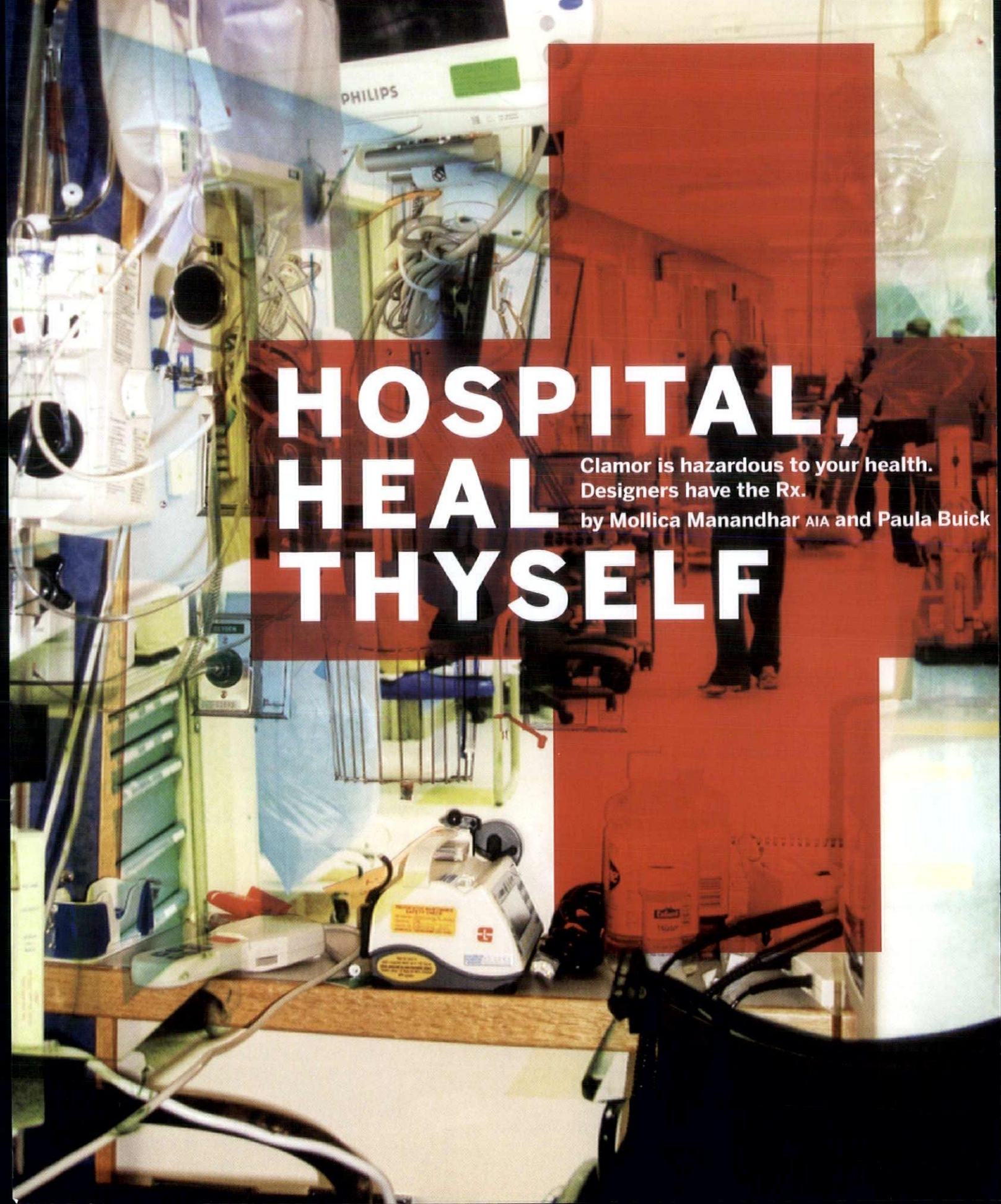
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# HOSPITAL, HEAL THYSELF

**Clamor is hazardous to your health. Designers have the Rx.**

**by Mollica Manandhar AIA and Paula Buick**



**OPPOSITE**
A common hospital scene. Photos courtesy Payette.

**ABOVE**
A quieter approach. At this typical intensive-care patient room on the 6th floor of the new Lunder Building at Massachusetts General Hospital, the architects minimized visual clutter along with aural noise and created calming views. Photo by Frank Oudeman. Architecture by NBBJ.

**Imagine bright lights, beeping monitors,** crowds of strangers and workers filling the corridors. Now add large equipment on wheeled carts, computer screens everywhere, and the voice of overhead paging speakers. When you complete the picture with the shuffle of partially clothed bodies, today's hospitals are more akin to 24-hour Las Vegas casinos than the home-like spa settings that are conducive to recuperation.

Mix in the pervasive sense of personal vulnerability and drama, and the need to get things done quickly, with no tolerance for error, and the hospital—a place most of us will encounter at some point in our lives—is far from the peaceful environment needed to support healing.

In fact, the clamor impedes recovery: Rising blood pressure, increased respiratory rates, sleep deprivation and anxiety are well documented in adults overexposed to noise. The World Health Organization recommends that noise in hospital rooms shouldn't be above 30 to 40 decibels. (For comparison, the rustling of leaves is 20 decibels, and highway traffic is 75 decibels.) A study published in 2012 by University of Chicago assistant dean Dr. Veneet Arora found that average patient-room noise level was closer to 50 decibels and sometimes spiked to 80. This is like sleeping next to a running dishwasher all night. No wonder standard hospital satisfaction surveys report patients complaining about noise twice as often as about the food.

Architects working in healthcare settings strive to create an ordered, tranquil environment: part meditative chapel and part babbling forest brook. But this essence of calm is far from total silence. Susan E. Mazer, president of the consulting firm Healing Healthcare Systems (and a former jazz harpist), has it right when she describes the need to create an exemplary standard of caring that is "heard as well as seen."

As early as 1859, Florence Nightingale believed that noise delayed healing. In *Notes on Nursing*, Nightingale writes, "Unnecessary noise, then, is the most cruel absence of care which can be inflicted either on sick or well." In 1918, one of the foremost American architects in healthcare design, Edward Fletcher Stevens, called for new technologies to reduce noise; he advocated the removal of "nurse call electric bells" and worried about vacuum cleaner racket. Even Mark Twain was recruited to join The Society for the Suppression of Unnecessary Noise, in an early-20th-century effort to minimize steamboat whistles in the East River as they passed though hospital zones.

The first comprehensive acoustic regulations for hospitals in the modern era appeared in the 2010 edition of *Guidelines for Design and Construction of Health Care Facilities*, published by the nonprofit Facility Guidelines Institute. The institute brought together an interdisciplinary group of architects, engineers, human behaviorists, acousticians, and others to set standards for healing environments. The guidelines cover a wide range of issues, from internal noise isolation of a patient's room to vibration isolation of mechanical equipment to dampening exterior noise impacts on the surrounding community.

The Acoustical Society of America has been vital in developing numerical ratings to measure interior walls, ceilings, floors, doors, windows, and exterior wall configurations. The larger the number the more successful the material is at preventing noise from passing through. Establishing such standards is a step in the right direction. But merely focusing on compliance with a single numerical rating risks losing the potential for more highly informed acoustical design decisions. More important than trying to solve the problem with a number is finding the cause of the problem and addressing it at the source.

The hospital experience is dominated by equipment noise. From the monitor next to the patient's bed to the neighbor's television, from pagers and alarms to mechanical equipment noise, there is no end to the cacophony found in a patient room. Other than the obvious need for regular equipment maintenance, options to keep unwanted noise down could include locating TV speakers close to a patient's bed, using headphones, or providing speakers integrated into pillows.

Hospitals are making progress. To minimize overhead paging, many are now incorporating integrated pagers, texting, and synchronized internal communication among staff. Sound-level monitors at nursing stations also help keep staff aware of their behavior. A device called the "Yacker Tracker" has been installed at Veterans Administration hospitals in

Florida and at Roger Williams Hospital in Providence. It is similar to a stoplight, turning from green to yellow to red to alert people in the vicinity when sound levels reach an uncomfortable level.

Hospitals are also visually cluttered places, requiring designers to keep in mind the important relationship of visual and auditory senses. Providing a view and connection to nature can have a positive effect on the mind. At the recently completed Lunder Building at Massachusetts General Hospital, every patient room and the staff lounges have been designed with calming views. Open gardens of all varieties and sizes, whether on ground level or atop a roof, have the power to heal. At Hershey Medical Center in Pennsylvania, multiple healing gardens provide respite from a busy and noisy clinical environment for patients, family and staff alike.

Even at a distance, patients are more apt to be negatively affected by noise when they can see the corresponding unpleasant source. Like covering your eyes or ears in a scary movie, reducing the number of sensory inputs is calming. Similarly, lowering light levels tends to cause people to tone down their voices. Lighting, then, is an invaluable tool in reducing noise.

Good design is sometimes limited by regulation. Infection control obviously is critical. But as Erica Ryherd, an acoustical specialist at the Georgia Institute of Technology, writes in her 2010 article "Too Noisy to Heal," poor sound environments are a result of reflections from numerous hard surfaces that hospitals favor because they are easy to clean. As a result, noise mitigation solutions mainly have been confined to ceiling materials.

Although infection-control measures must be followed, marquee cancer centers such as Memorial Sloan-Kettering in New York City and MD Anderson in Houston, and community hospitals such as St. Joseph's in Wisconsin are going against norms by using carpet in the hallways of their patient-care spaces. Carpets have meant quieter corridors and greater patient satisfaction. St. Joseph's reports evidence that carpeting reduces staff fatigue as well. The hospitals have also acknowledged the need for higher levels of maintenance for carpeting and have adopted a rigorous program that supports such maintenance.

Another regulatory imperative for sound control is HIPAA—the Health Insurance Portability and Accountability Act—which establishes national rules







for patient privacy. Hospitals understand that poorly designed acoustical environments can pose a serious threat to confidentiality if private conversations between doctor and patient or among clinical staff can be overheard. Still, privacy should not be the only goal for designers. Human presence perhaps creates some unwanted noise, but it should be weighed against the positive influence of human connection. Sounds of water, music, and other calming sounds from nature have proven to be therapeutic as well.

It is not just patients who are affected by noise. Hospital staffers consistently report exhaustion and burnout due to the continued exposure. *The Boston Globe*'s coverage of "alarm fatigue" found medical errors, delayed care, and even deaths could be attributed to staff becoming desensitized to the constant bleating of alarms. On one 15-bed unit at Johns Hopkins Hospital in Baltimore, staffers documented an average of 942 alarms per day—about one every 90 seconds.

Some owners are taking charge. A 2011 article in the *St. Louis Post-Dispatch* described how Memorial Hospital in Belleville, Illinois, adopted the national Silent Hospitals Help Healing, or SHHH, campaign. "The hospital's maintenance staff replaced squeaky wheels, installed noise-absorbing ceiling tiles, and flattened the thresholds at the entrances to patient rooms," the article read. Beyond those structural improvements, Memorial Hospital staff began sending text messages to doctors, reducing noisy overhead paging announcements "from an average of 100 pages per day to only three." A tangible act such as this from the owner's side sends a strong message about the importance of acoustic comfort, and it certainly is a strong booster for both patient and staff satisfaction.

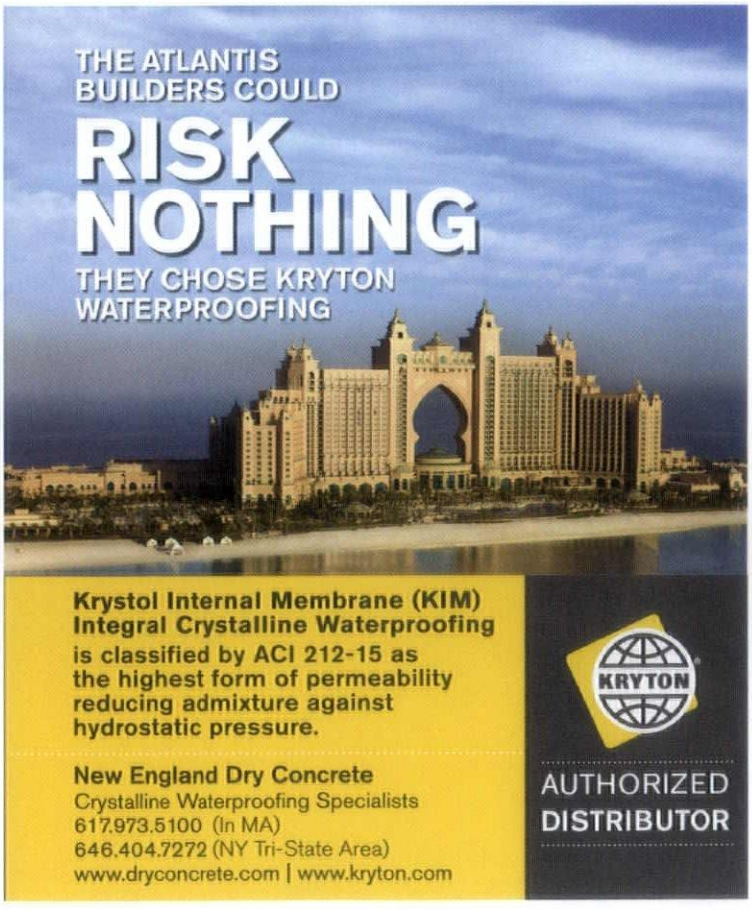
Acoustics in healthcare is a relatively new area of specialization. Merely mitigating noise through sound-absorbing materials is not enough. We need to be thinking actively of hospitals as multicultural, multi-layered environments.

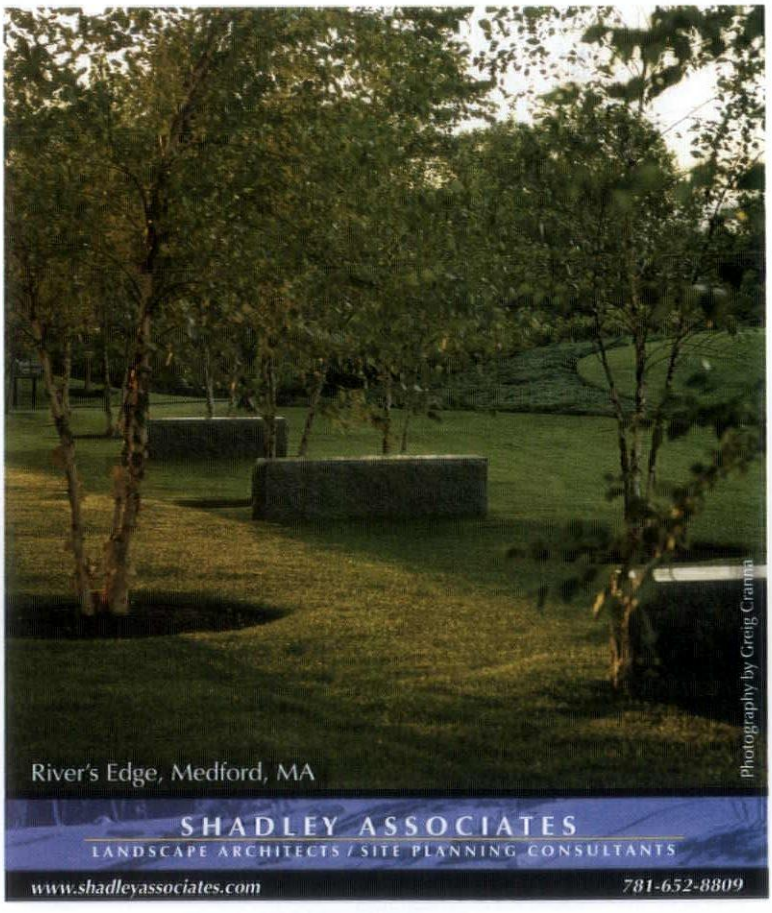
After all, our ears are "on" 24 hours a day. Some of us sleep through everything at night and yet hear the baby stirring. We can hear noises from a very soft whisper to an airplane engine and everything in between. Acoustic transmission and perception of noise is complex, and to create the right balance, a holistic approach is needed: one that considers use of advanced technology, connection between the senses, and behavioral and cultural education for everyone involved. ■

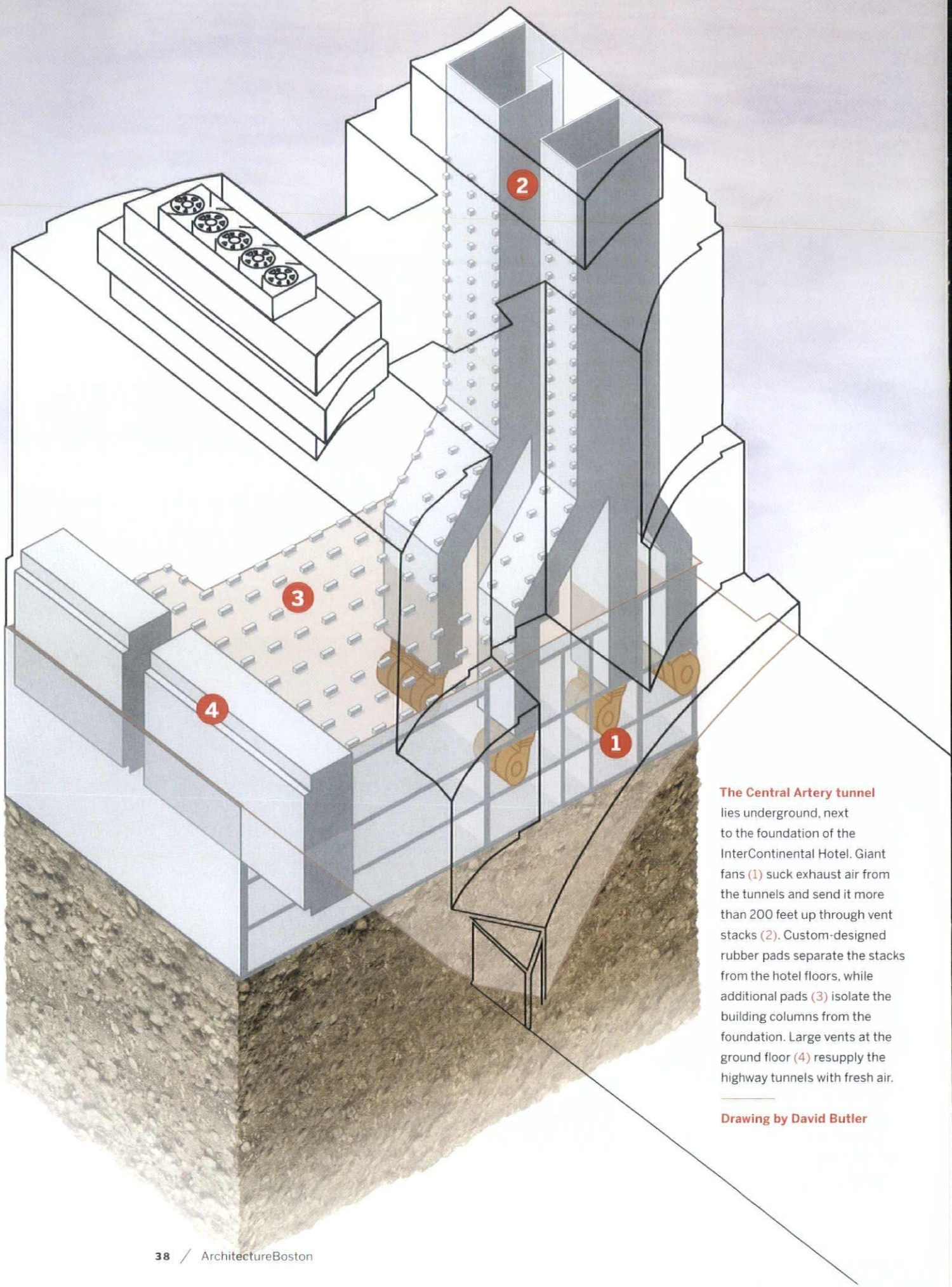
**FOR MORE INFORMATION**

See the current *Guidelines for Design and Construction of Health Care Facilities* at www.fgiguidelines.org.

To read more about The Society for the Suppression of Unnecessary Noise and Mark Twain's role in hospital noise control, visit: www.architectureboston.com




**The Central Artery tunnel** lies underground, next to the foundation of the InterContinental Hotel. Giant fans (1) suck exhaust air from the tunnels and send it more than 200 feet up through vent stacks (2). Custom-designed rubber pads separate the stacks from the hotel floors, while additional pads (3) isolate the building columns from the foundation. Large vents at the ground floor (4) resupply the highway tunnels with fresh air.

**Drawing by David Butler**

# BRING ON DA NOISE

Rattle, roar, or ruckus: With these hidden acoustical techniques, you'll never know it's there.

BY TIMOTHY FOULKES

**Sound is all around us:** sometimes more than we want. Architects are in a position to control unwanted sound in the built environment, leaving visitors blissfully unaware of the din. The following is an abbreviated guide to the hidden acoustics all around us, often known only to a building's design and construction team.

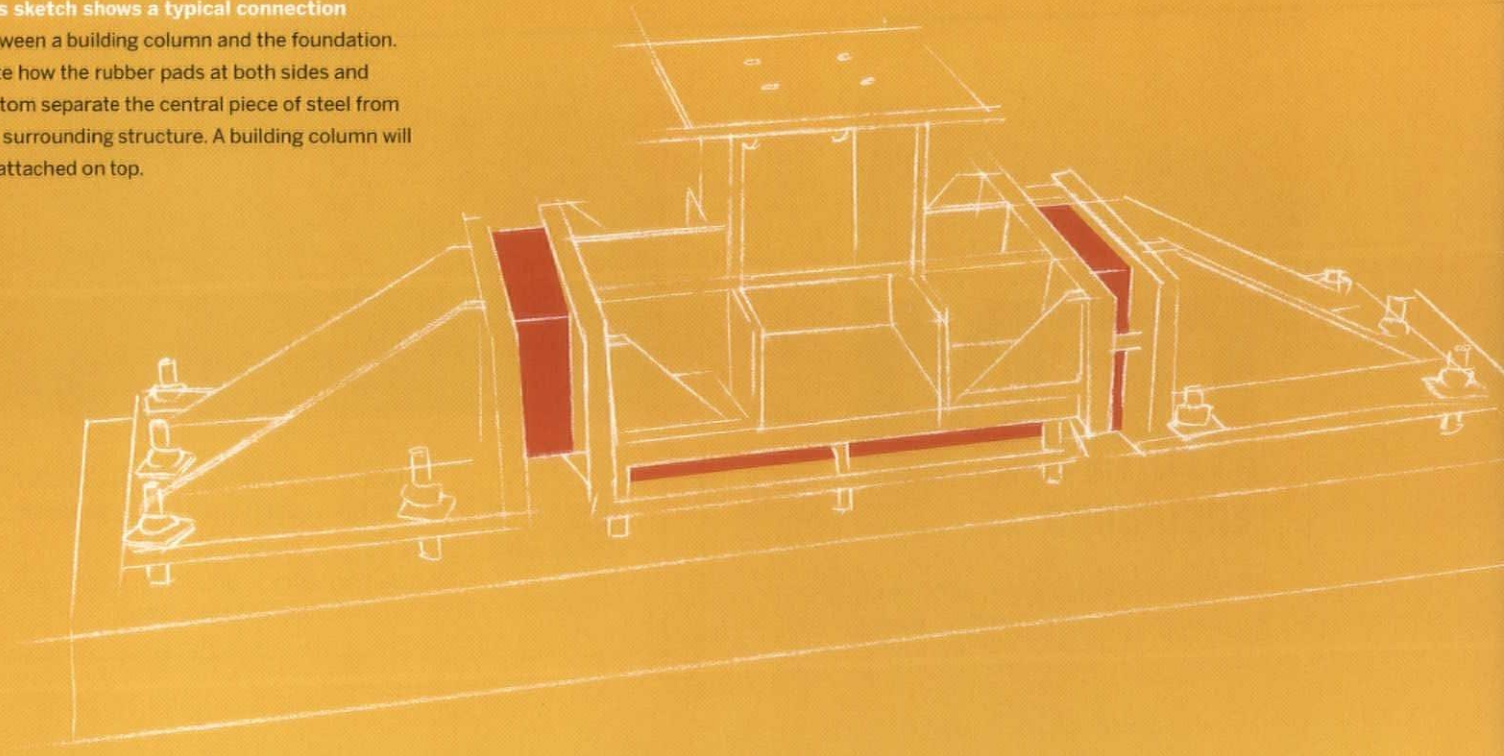
Few people realize, for example, that Boston's InterContinental Hotel and condominium building on Atlantic Avenue is isolated on rubber pads. Not so many years ago, this site was a mud pit with massive concrete vent stacks rising 237 feet above grade to discharge air from the Central Artery tunnel. These vent shafts are now concealed inside the hotel. Some guest rooms are directly against the vent shafts, and the four-diamond hotel has very high standards for comfort.

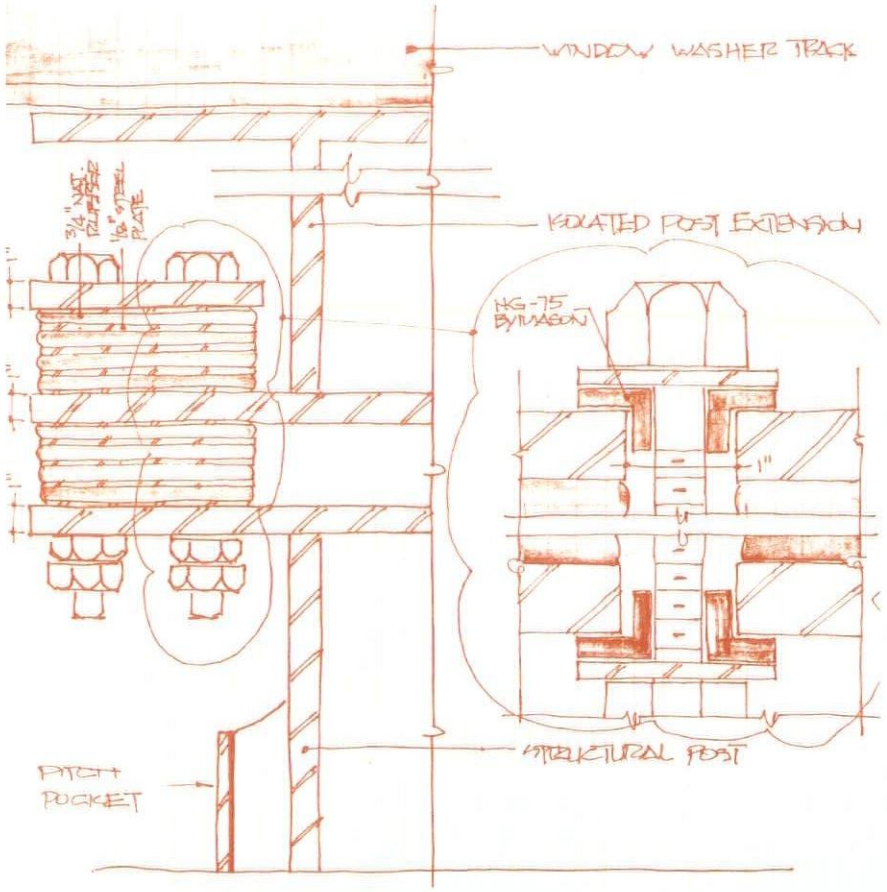
To control the effects of vibration from the fans, the entire building is isolated from the foundation piles on rubber pads. The rubber alone cost over $1 million. Cavanaugh Tocci's design of each pad had to take into account vertical loads, lateral loads, and seismic loads in all three axes. Large steel bolts and plates act as stops to limit deflection.

Many of us understand the fundamentals of noise reduction: Avoid gaps and leaks; use sound insulation in wall cavities; use multiple layers of gypsum board at walls where extra sound isolation is needed; employ thicker concrete floors to control sound and vibration. Beyond the basics, however, sophisticated (and expensive) techniques can control sound and vibration, easing the tumult of our daily lives.

**FOR MORE INFORMATION**
For more photos, drawings, and for full project credits, see: www.architectureboston.com

**This sketch shows a typical connection** between a building column and the foundation. Note how the rubber pads at both sides and bottom separate the central piece of steel from the surrounding structure. A building column will be attached on top.






**The window wash rig at the new Atlantic Wharf office tower** offers another custom-designed sound isolator system. High above street level, window washers work from a suspended platform. Their window wash rig moves around the building perimeter on a steel rail-and-column system at the roof. Below the roof are top-floor executive offices. In some buildings, moving these rigs on their steel rails creates distracting noise in offices below. At Atlantic Wharf, rig movements are almost inaudible because of a sophisticated system of rubber pads that isolate the track from the support columns. Each isolation point must be designed for vertical loads with and without the rig at that location, lateral loads in both directions, and uplift loads from the rig. This drawing, by Greg Tocci, shows the cross-section of a sound-isolated rig connection.

Structural Design & Review

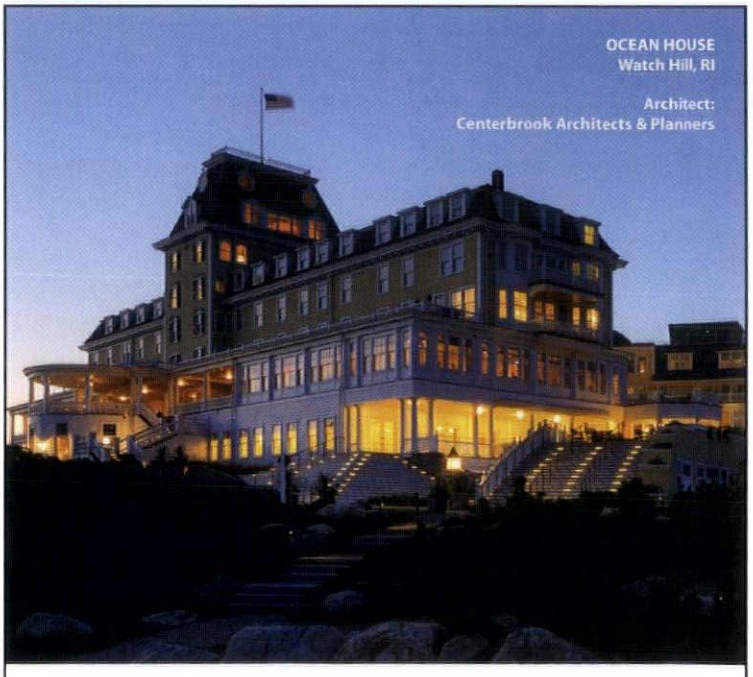


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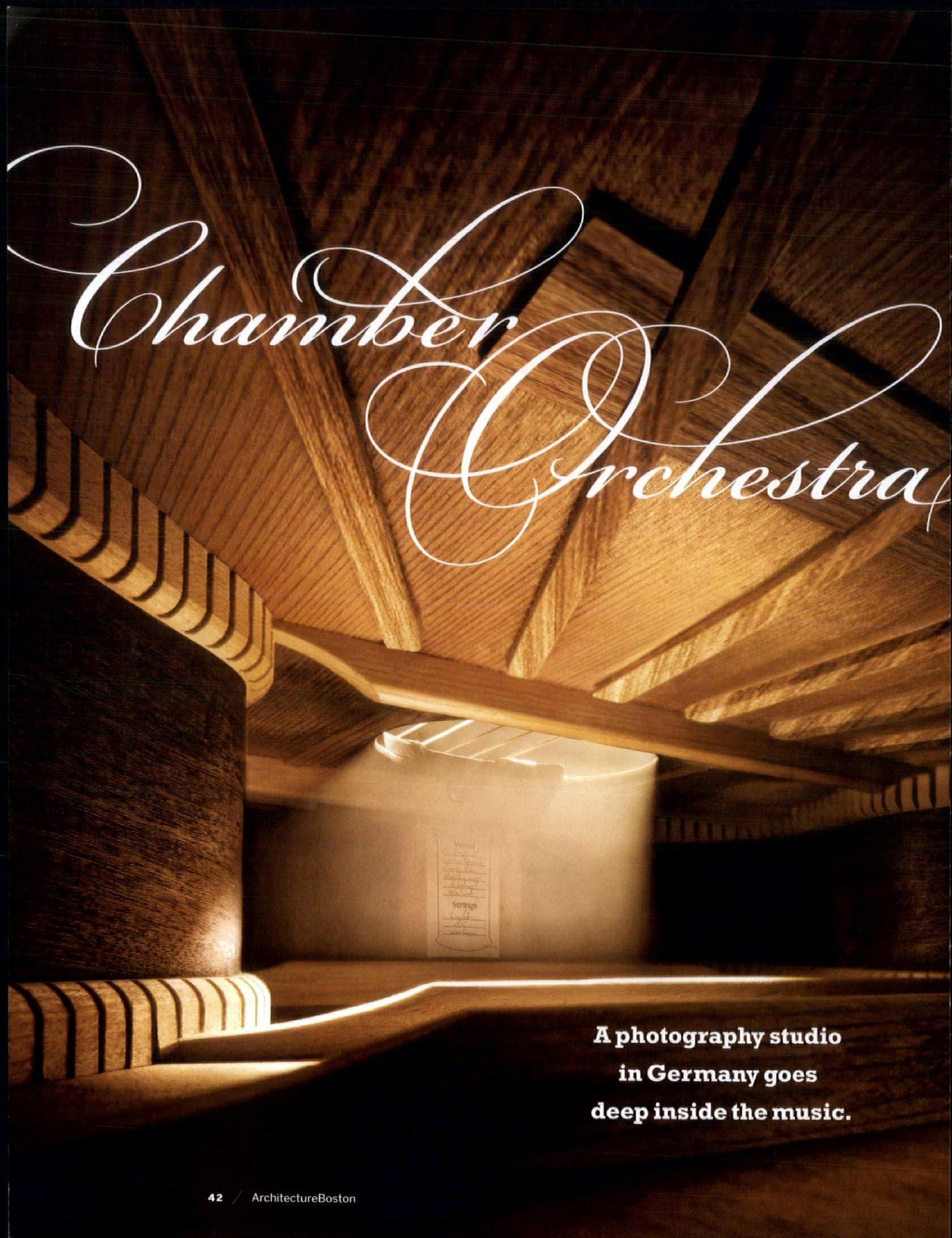
**One look at the soaring atrium at the Peabody Essex Museum** would lead most visitors to expect a noisy, reverberant space: The high ceilings, stone floors, and large glass areas are a potent combination for sound. But the acoustics are well controlled, with sound qualities more like an outdoor courtyard. Even more surprising, there are no obvious acoustic finishes.

One of the atrium's most important acoustic features, paradoxically, is background noise. The ventilation system was designed and adjusted to produce a low-level white noise, to mask the last 20 to 30 decibels of reverberation without interfering with speech. The jet nozzle air diffusers create this sound, and their velocity is carefully set to create the desired amount of noise.

The finish materials—sunshade fabric, brick walls, and ceiling panels at the adjacent balconies—also contribute. Each brick absorbs a small amount of sound; collectively the effect is significant. The sunshade fabric, covering a large surface area, works on a similar principle. The balcony ceiling panels—which absorb 85 percent of the sound that reaches them—are well-camouflaged, designed to look like smooth plaster.

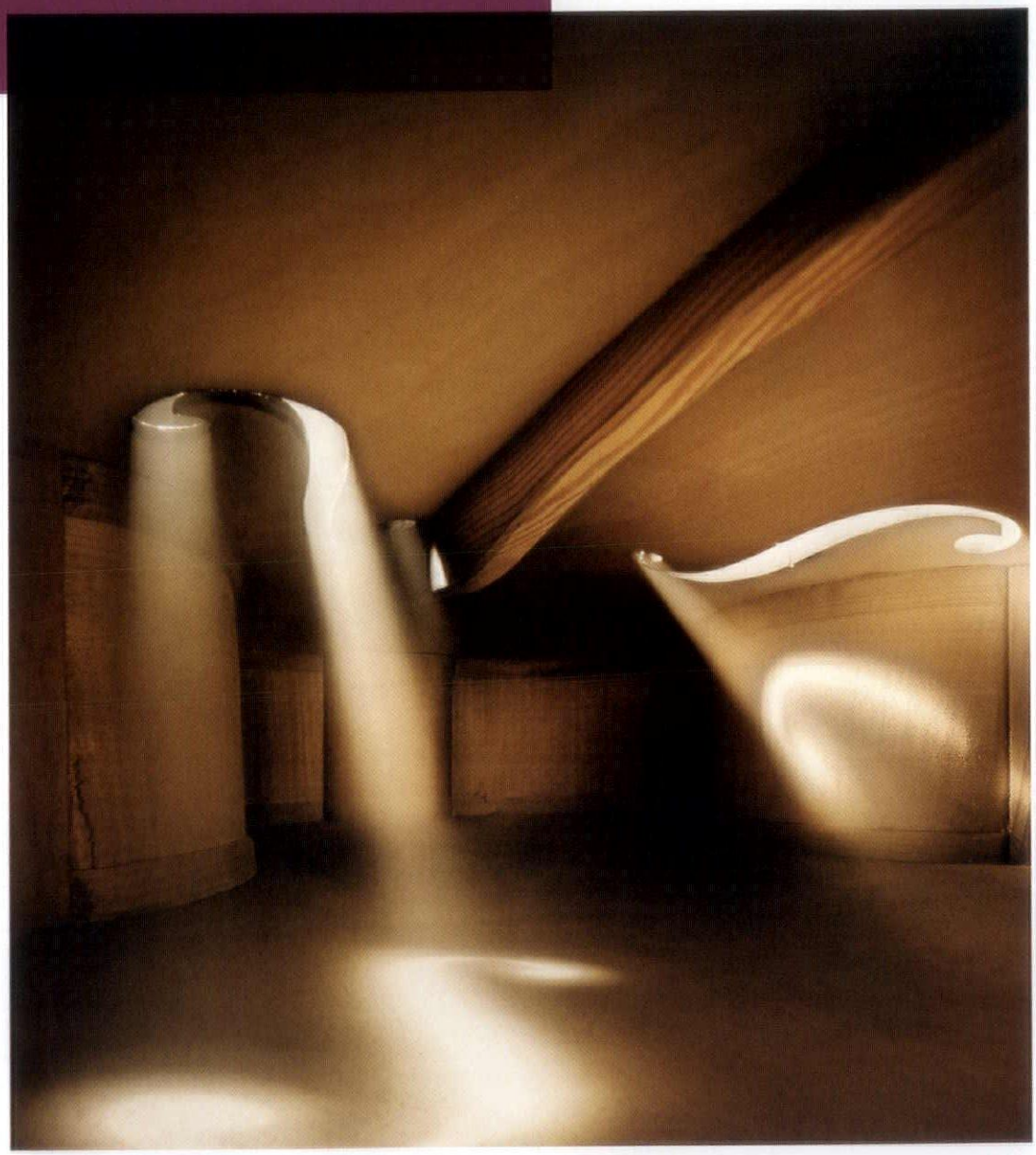
Acoustic consultant Alban Bassuet of Arup wanted the space to be moderately reverberant. There should be some reflections to bring the space alive but still provide for easy communication. He used a computer model to calculate acoustic values and to simulate the sound of the space. Creative acoustic mitigation was wholly integrated with Moshe Safdie's architecture. ■





Chamber Orchestra
Strings
A photography studio
in Germany goes
deep inside the music.

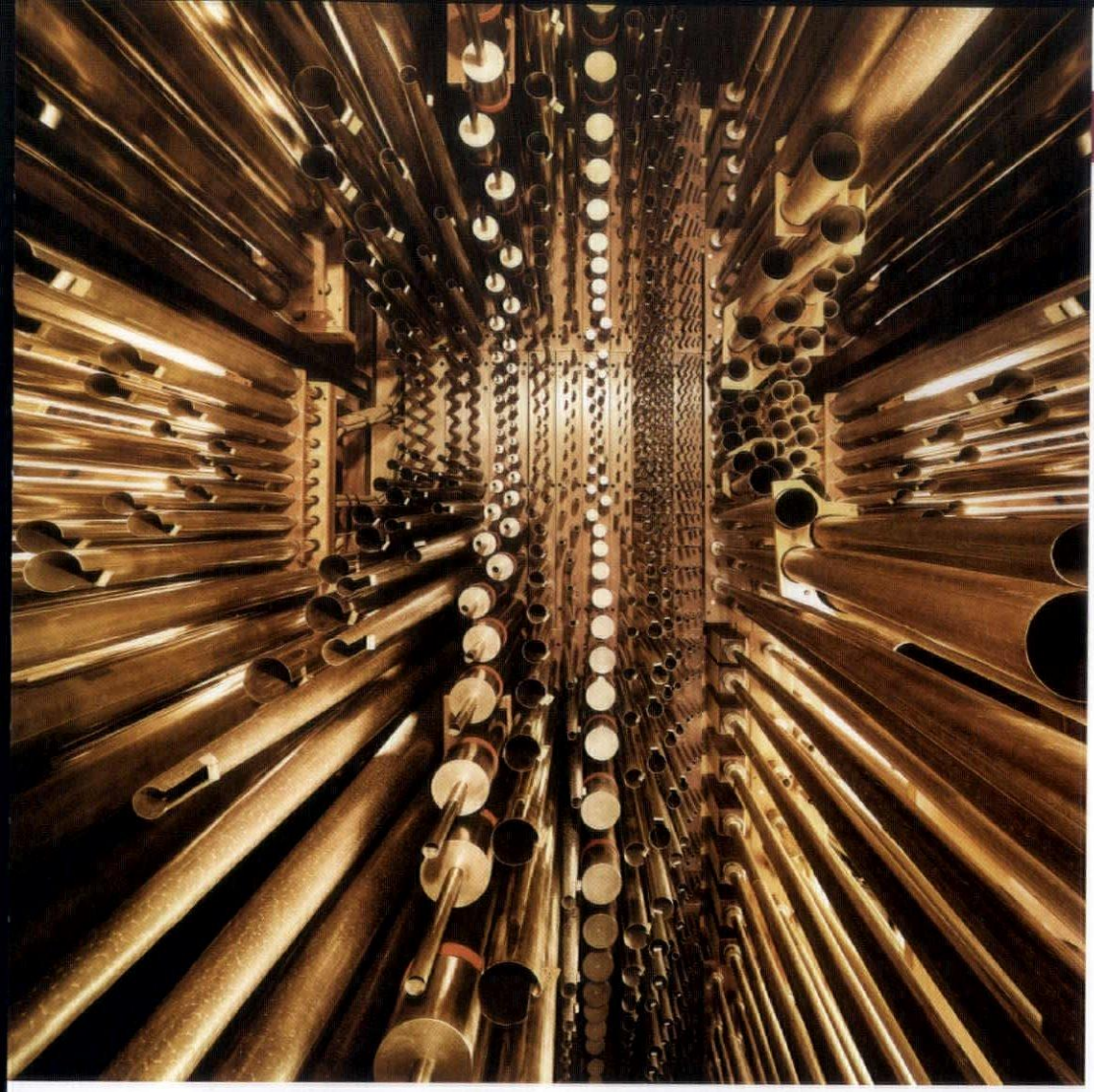
**These spacious photographs** of concert-instrument interiors—their chambers, and not just figuratively—were taken as part of a promotional campaign for the Berlin Philharmonic. Photographers Andreas Mierswa and Markus Kluska, whose studio is in Munich, used different cameras and lenses for each shot. Kluska described the work of angling the large Sinar commercial camera just right above the organ pipes as "an extreme acrobatic challenge."

If these photographs evoke the famous 1934 picture of Grand Central Station, it isn't an accident: Art director Björn Ewers suggested a study of that image as the team first considered the project. The series won the gold prize for photography from the Art Directors Club of Europe in 2009.

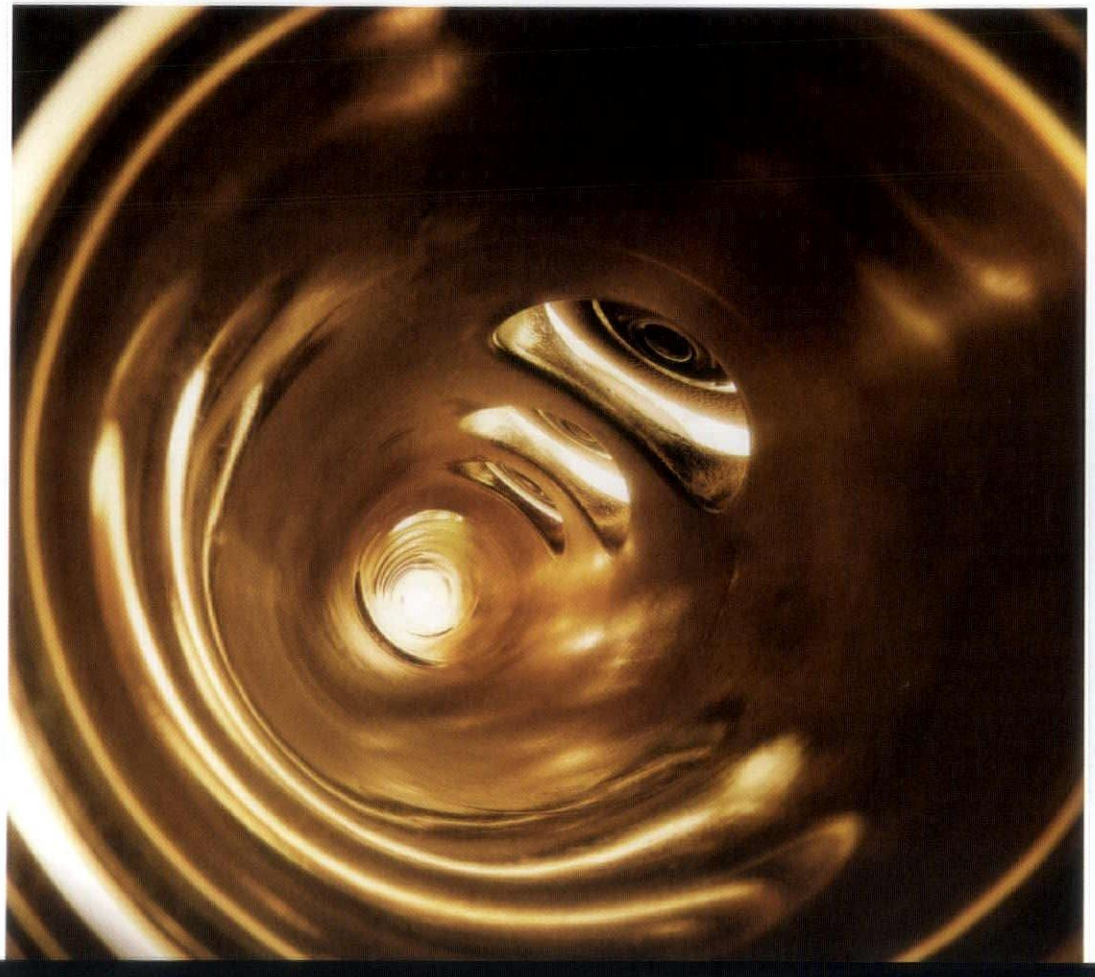


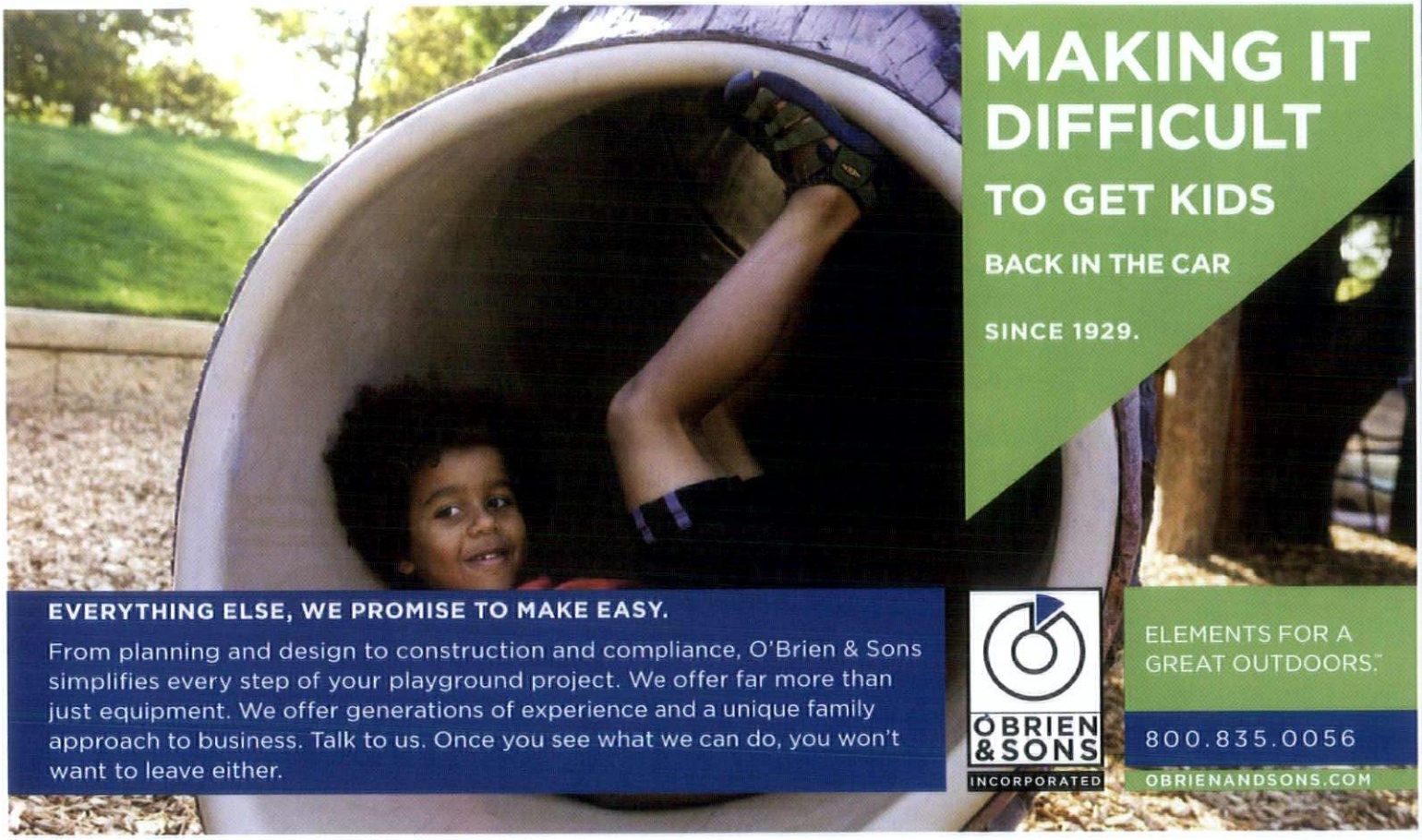
**OPPOSITE:** Guitar
**ABOVE:** Cello





**OPPOSITE:** Contrabass
**ABOVE:** Pipe Organ
**RIGHT:** Flute





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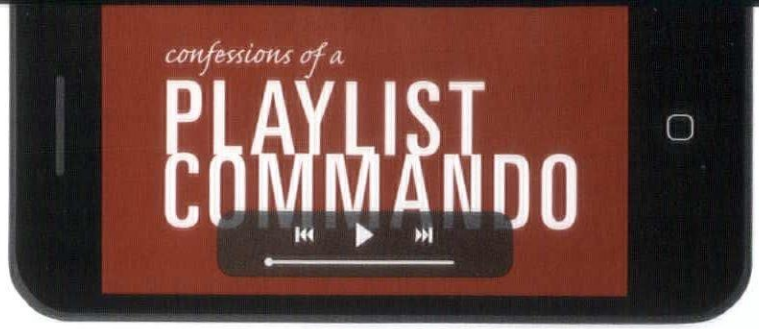
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by Corey Zehngebot

**Whether music should be played** aloud in open office environments is controversial, though few will dispute that it can be an excellent motivator. Like athletes or surgeons, designers often rely on music to put them in the right mental space to tackle a particular assignment. We see athletes amidst the chaos of an event, eyes closed and headphones on, listening to whatever helps them get their game on. Designers have their own "fired up" music, craving the right ambient sound to produce good work.

At Utile, an open-plan office with about 20 employees, there is one big table where we all sit, white walls, and—notably—no enclosed spaces whatsoever. The politics of the communal playlist can be contentious, since what is audible is inescapable.

After working in the office for a few short months, I inherited control of the office transmitter and speakers. Though initially flattered, I soon realized that playlist commando is a thankless job.

Crafting a playlist in the working world is not an academic exercise. In architecture school, headphone culture was dominant. If you so much as played a note of music aloud, objections were immediate. But relying on your own computer for music wasn't as limiting as it seemed: With hundreds of users connected to a central server, one had access to weeks of shared music.

While some made no effort to camouflage their identities, most chose more cryptic names ("smittenwithsmithson," "discretizeMYsurfaces," "Architecture-WOMANifestos") for their musical catalogs. Even within this cloak of anonymity, I suspect that music was being used as a signifier, with lesser-known albums or artists included in playlists for the cachet rather than the love. Could everyone really have liked Brian Eno that much?

In a small office the soundtrack must be approached curatorially. This is further complicated when playing to an expanded crowd, which often includes clients within earshot. Consequently, there must be a greater tolerance for headphones. Although office etiquette may frown on them, headphones provide necessary focus when a deadline is imminent or if there are meetings nearby.

So I beat on… with some interesting interludes. There was a six-month stretch at Utile when the Northeastern intern took an active role in playlist programming. When I was away at a meeting or just forgot, she would commandeer the audio jack and turn on her personal favorites. Often, this was Girl Talk, AKA Greg Gillis, the 29-year-old artist who produces high-octane mash-ups on his computer using digital samples from other tunes. This was fun for a while, but soon "normal" music began to sound bland, and I found myself wanting to hybridize everything. Not good.

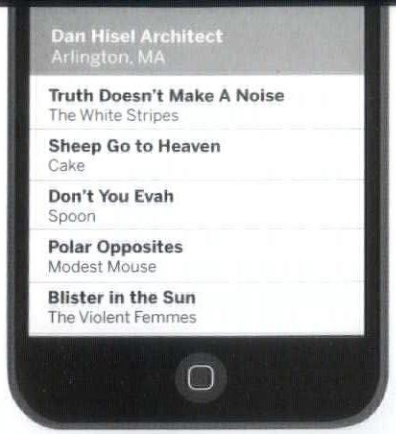
When the idea was floated to create a shared Pandora Internet account, I was genuinely enthusiastic. Unfortunately, its use-value peaked right around Christmastime, when many in the office were struck by the urge to hear "Feliz Navidad" around the clock.

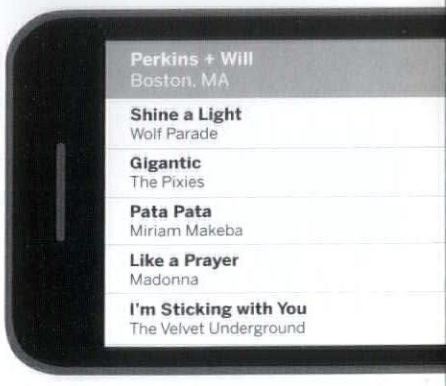
Recently, Utile entered a new age by introducing a dedicated WiFi network just for music. Now everyone on staff with an iPod has the power to press play. This has obviated the need for a playlist commando, about which I feel mainly relief, happy to allow others to play music when the spirit moves them or simply to have periods of (blessed) quiet. ■

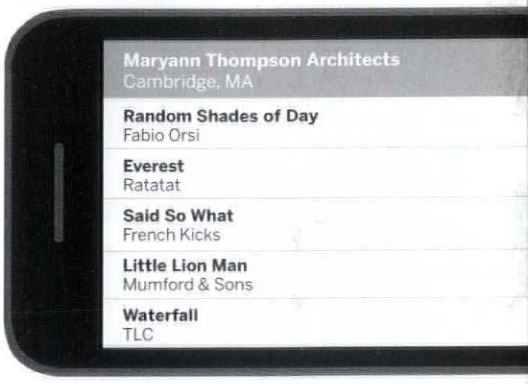
**Corey Zehngebot** works as an urban designer and planner at Utile.

**RANDOM SHUFFLE**

Here are the top five songs that appeared at random on the playlists of a few area firms. Go to www.architectureboston.com to see more and submit your own.

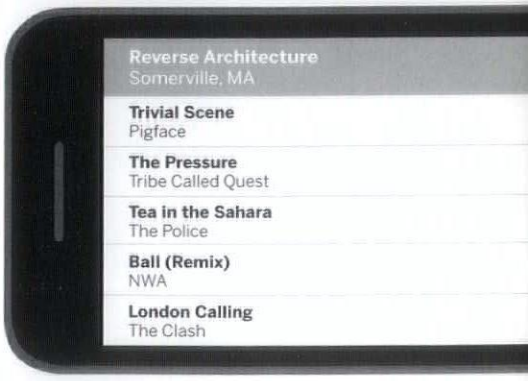








# “I imagine myself



# composing a space."

## Jonas Salk, August Komendant, and the Woman populate a new chamber opera inspired by the life and work of Louis Kahn.

LEWIS SPRATLAN speaks with FREDERICK PETERS

OPPOSITE
Louis I. Kahn, *Tower of Villa Rufolo, Ravello, Italy*, 1929, watercolor on paper, 14¼ × 10". From the collection of Sue Ann Kahn. © Sue Ann Kahn. Courtesy of Lori Bookstein Fine Art.

**In 2005, composers Lewis Spratlan and Jenny Kallick** began work on an opera inspired by Louis Kahn. Kahn, who excelled in music and once considered becoming a composer, was especially cognizant of how sound works in a physical space. "Space has tonality," he often said.

Kallick, a professor of music at Amherst College, made recordings of the "acoustic envelope" at several Kahn buildings, which were employed in composing the work's prelude and interludes. Key elements from Spratlan's music were integrated into this electro-acoustic music, creating a seamless connection between the narrative world of the characters and the sounding spaces that filled their dreams.

Opening in the ruins of Rome and ending with the healing waters at Kahn's Salk Institute, *ARCHITECT: A Chamber Opera* narrates the dramatic arc of Kahn's journey from dreamer to master builder.

*ARCHITECT* has not yet been performed live, but a video will be screened as part of the Architecture and Design Film Festival in New York City, October 17–21.

In this interview, Spratlan discusses the project with Frederick Peters, board chairman of New Music USA, which supports composers, performers, and audiences of new American music.

**Frederick Peters:** How did you decide to create *ARCHITECT*? Did it arise from a personal interest in architecture?

**Lewis Spratlan:** Jenny Kallick was really the creator of this piece. While a student in New Haven, she became very interested in Kahn's two important buildings there, the Yale Art Gallery and the Yale Center for British Art, particularly after seeing Nathaniel Kahn's film *My Architect*. She decided that she wanted to immerse herself in what these buildings stood for, and was particularly interested in their sonic value. Kahn spoke often of his interest in the sonic qualities of his buildings. He had a strong interest in music; in fact, he had even considered a career as a composer. He frequently spoke of music and architecture and sound in one breath, so to speak.

Jenny began this project by doing recordings, together with John Downey, a student of hers, at the Salk Institute; at the Yale Center for British Art; and at the Exeter, New Hampshire, Library. They went to various locations in these buildings and would first of all record just the room tone. I can't technically describe what room tone is, but when you're in any given room, you're never in total silence; the environment is producing almost imperceptible sound. That's room tone.

Then she would have various sounds made in that room—a hand clap, a drum smash, a squawk on an instrument, usually a quite short burst of sound—to determine what the so-called sonic envelope in that space would do to those sounds.

**Frederick Peters:** Was she thinking opera at this point, or was she just thinking it was interesting to collect the sounds?

**Lewis Spratlan:** At that point, we weren't talking about it as an opera. At that time, the Yale Art Gallery was really the only Kahn building I knew. I didn't have a very elaborate idea of Kahn—who he was in the world of architecture or what he stood for, particularly. But I knew I liked that building.

Jenny presented me with four or five sets of lyrics, and I was very taken by them, right away. A lot of them include Kahn's own words: There are volumes of Kahn's writings and remarks that were taken down by people as he talked with them.

Very early on, she said, "You've got to go see *My Architect*." It was a revelatory film to me. I think the main theme in the life of Kahn and at the heart of this work is—and it's something I've been aware of for years as an artist myself—the cost to one's private life of an artistic career, which is exaggerated in Kahn's case, but it's something that all artists are aware of.

**Frederick Peters:** It's overwhelmingly strong in the film, how everybody around him paid for what he did.

I've often thought about the commanding forces at work in both architecture and music, and they are remarkably similar. —*Lewis Spratlan*

**Lewis Spratlan:** Absolutely. Frank Lloyd Wright is an interestingly parallel case—the same sort of cavalier obliviousness toward people who were extremely close to him. But we observe it all the time. Art has a kind of commanding quality if you're its servant. My wife might disagree, but I think I've mended my ways a little after seeing that film.

**Frederick Peters:** Early on in the opera, Kahn says that space has tonality: "I imagine myself composing a space." One could flip that and say music has architecture. Working on an opera about an architect, were you unusually conscious of structure? Were there particular ways in which you tried to build architecture, or a sensitivity to architecture, into the work?

**Lewis Spratlan:** There are two conspicuous places where I was quite self-conscious about trying to evoke architecture in the music itself. I've been acutely aware for a long time what architecture is and what it has to be. I've often thought about the commanding forces that are at work in both architecture and music, and they are remarkably similar. Common to both is the fact that there's a surface: the tune, or the façade. But behind that surface, in both cases, there are elaborate mechanisms that allow that surface to be understood and appreciated: the harmonic contrapuntal structure of music, or the whole collection of structural elements that are involved in architecture.

One of the most conspicuous moments when I am invoking architecture in a frank way is the opening of the soliloquy we hear Kahn deliver about what a building is and what a building needs to be. It's called "The Flame." He had this rather elaborately articulated notion that was consistently at the center of any structure that he was working on. It was his metaphor for the sort of irreducible purpose of that building: why it existed, what its mission on earth was. And then he had this rather concentric idea of subsidiary functions that were paid attention to in the design of a building. So there's this sense of centeredness and then structure surrounding layers of concentric function.

**Frederick Peters:** And in the opera, that's described in a quasi-religious way, as if you had the people within the temple, then the people who want to be in the courtyard of the temple, and then the people who want to be even further away but nonetheless in proximity to the temple.

**Lewis Spratlan:** And those who want to just wink at it. So there is an attempt to communicate that sense of concentric qualities in this aria. And the introduction to it is my best shot at setting up some architectural elements. What I had in mind was two walls intersecting with one another, but on a single grounding, lying on a common platform. The platform in this case is the lowest sound that was makeable by this orchestra, which was the E of the double bass. In my imagination they were great, towering walls, so the whole tonal span is laid out in them. But they're distinctly different: One might think of one being in shade and the other in bright sunlight, or one rough and the other smooth. I wanted a sense of two independent elements, which were at the same time linked by their being on this ground of low E.

In fact, when we first hear the voice of Kahn, it appears during the sounding of one of these walls in the form of an oboe. The oboe is the surrogate for Kahn in this piece. The other moment is in the introduction to the first number in the piece, a duet—

**Frederick Peters:** When they're in Rome.

**Lewis Spratlan:** Yes, there's an invocation constantly of stone work. I was trying to get at the whole sense

of these interlocking blocks of material. The music actually is like brick work, or interlocking elements. Again, not in a way that it's going to make you pop up and say, "Ah! Well, that's a picture of a stone," but this is my response to trying to make that invocation.

**Frederick Peters:** The music during the first part of the opera, up until the entry of the Woman, has in many ways a lapidary quality—an impression of being polished and intellectually driven. Then the Woman enters, and suddenly you're in more of a sense world. Can you talk a little about the Woman? She's such an interesting apparition in this highly intellectualized, male environment.

**Lewis Spratlan:** Anybody who has any kind of familiarity with Kahn is aware that his private life was turbulent, to say the least. Complex. He was married and had a daughter by his wife, and he had at least two mistresses, each of whom bore a child by him. We felt that if we were going to be telling any kind of serious tale about Kahn, the issue of women in his life had to come up. So we made the decision to create an amalgam of these three women and call the character "Woman." What she stands for in the opera is an exemplar of the difficulty that he has with personal relationships. She feels neglected, not incorporated fully into his existence, on the outside all of the time.

We see the Woman twice. The first time, as you say, she interrupts this train of intellectual considerations and male dominance that had been occurring, and it's a very abrupt shift. We see her just after she has received a letter from Kahn that includes a poem by E. E. Cummings, which we hear her read. It's a complex reading: She doesn't simply sing it straight through; each of the lines is sung twice, and on its second reading, more of her reflection and the spice of her understanding are injected into it.



**ABOVE**
Louis I. Kahn, *Canal Houses, Venice, Italy*, 1928, watercolor on paper, 10 × 8". From the collection of Sue Ann Kahn. © Sue Ann Kahn. Courtesy of Lori Bookstein Fine Art.

**Frederick Peters:** Which then is followed by one of my favorite moments in the opera, the concrete duet, in which Kahn and the Engineer sing like workmen with Italian accents about how to temper concrete. Suddenly, for the first time, there are people—guys with wheelbarrows and bags of cement; it's actually a job site. And there, in the background, you see a building being put together while they are singing about how it has to be tempered with the right vibrations. Very funny.

**Lewis Spratlan:** I think this duet is one of the strangest operatic moments in captivity. Jenny imagined it as a moment between Kahn and [August] Komendant, showing their complicated relationship, as was the case with all the important relationships in Kahn's life. Komendant, by many reports, was largely responsible for a lot of Kahn's buildings even being built. Kahn was a tremendous dreamer and would come up with schemes about which most engineers would have said, "Why do you even show me this? It can't be done." Komendant was an imaginative, large-brained thinker who could find a way to make these buildings happen. So they were symbiotically very heavily involved with one another. At the same time, Kahn was abusive to him and felt that he was too strict about things, too orderly. [Komendant] wouldn't allow himself to be engaged in Kahn's pipe dreams. And Kahn was annoyed by that.

**Frederick Peters:** These visionary architects desperately need good structural engineers; otherwise, they end up with buildings that leak or barely stand up. They may

be conceptually brilliant, but for architecture to work, the building actually has to stand up. The doors have to open and close. That clearly is where Komendant was indispensable.

**Lewis Spratlan:** Both Kahn and Komendant were of Estonian heritage, so this duet starts with an imagined reminiscing about Estonia—the flounder, the little red potatoes. And then the other thing they share is their love of concrete. As I understand it, concrete is a tremendously important structural element in many of Kahn's buildings. And Komendant was apparently an absolute master of concrete. The concrete in most of their buildings has this incredible integrity to it: it simply doesn't crack. It also, and this is very noticeable in the Salk Institute, develops a patina, a burnished quality that you don't think of with concrete. When you look at it, it doesn't appear rough; it seems to have a finish to it. In any case, he was obsessive about getting concrete right. So they did share this love and respect for concrete. That's not an incidental thing. We imagined that when this is staged, they'll be having a beer somewhere, just a couple of guys who finally find a moment to sit and relax, then they fall into this riffing about concrete.

**Frederick Peters:** It's very funny.

**Lewis Spratlan:** It is funny, with this constant refrain: "Mix it right and cure it with the right vibrations." It's borderline nonsense, a deliberately heel-kicking moment in the piece. Like many of the great heavy-duty operas, there are wonderful moments of levity in it.

**Frederick Peters:** Then you move into an extended mad scene, very intense and just about 180 degrees from the lightness of the concrete duet.

**Lewis Spratlan:** This takes all the frustration and disappointment that we see from the Woman in her first number and sends it to its furthest extreme. Talk about a woman at the end of her rope—she's just losing it.

**Frederick Peters:** And not even articulate through much of it.

**Lewis Spratlan:** I've invented this kind of private language that she has, grunts and moans and squawks and squeals, and sometimes things that actually sound like language but don't mean anything to us semantically. There are a few English words in it, but



they're all chosen from that E. E. Cummings poem that she sings earlier. It's mainly just agony, which then turns into rage; then there is a moment of retrospective reflection on sexual joy that she had with him; then it lapses again into real fury at the end.

**Frederick Peters:** If you think about the opera in terms of movements, that scene is followed by what I see as the reconciliation section. You get the third embodiment of the baritone as the Healer, and Salk and Kahn have this lovely interaction on the grass in which Salk soothes him into sleep with a wonderful little lullaby. Then there's a dream sequence, which ends up with a reference to the Salk Institute, which seems to be where all the different themes come together. So you have all three of the characters at the end singing very lyrically about the water flowing through the structure and out to the sea, with obviously all the things that the sea represents.

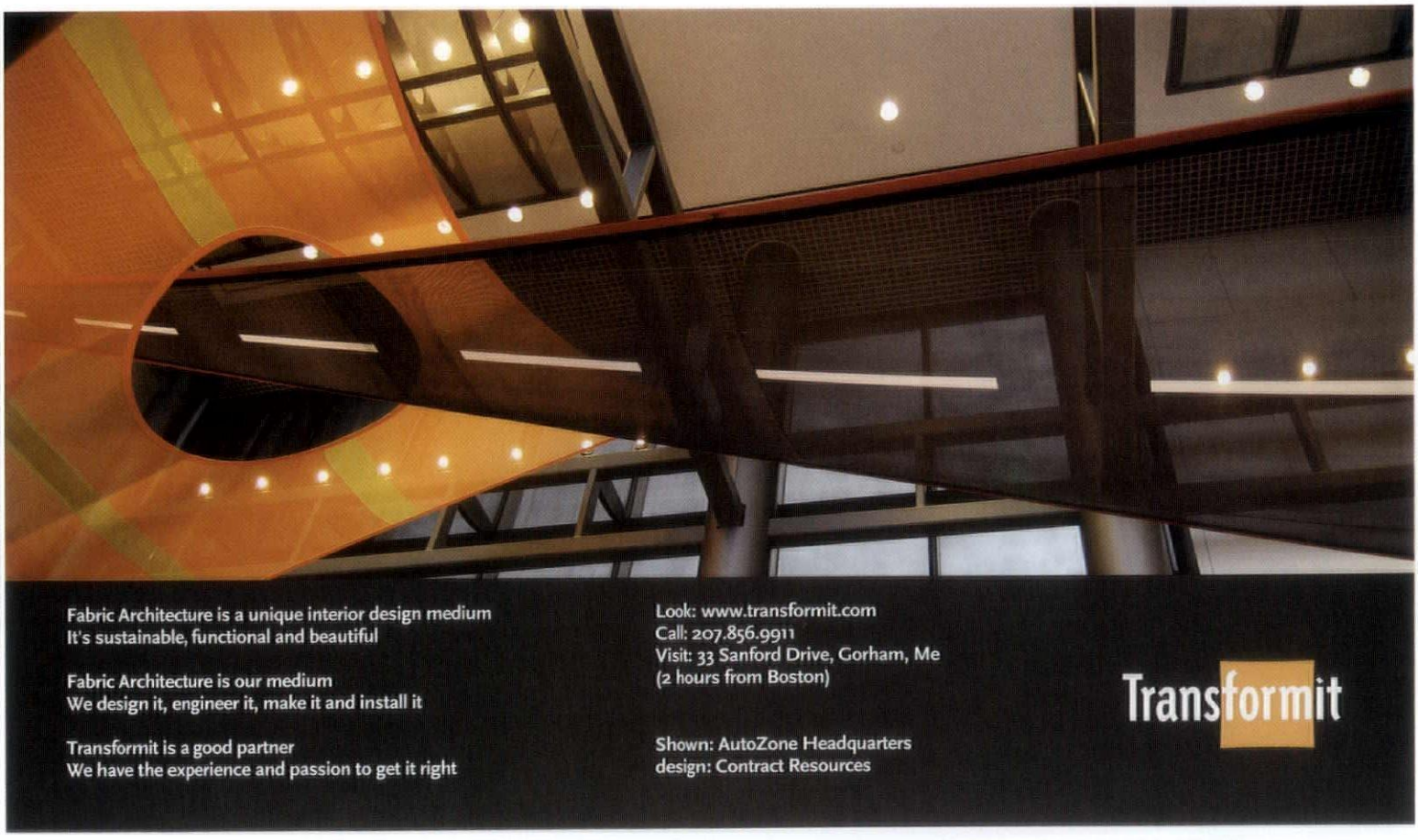
**Lewis Spratlan:** Jonas Salk was very aware of Kahn's work and actually commissioned him to design the Salk Institute. Salk had this vision of a marriage of science and art—and not only the art of the building, but he wanted art to be in the air at this building. In fact, to this day there is an ample line item in the budget of the Salk Institute for artistic productions, and they have a little theater there.

**Frederick Peters:** *ARCHITECT* hasn't yet been performed live on stage; how do you imagine that performance when it occurs?

**Lewis Spratlan:** Right from the beginning, we had this idea of its being very portable. It has a total cast of only three singers, just nine players, a very small orchestra. As I like to say, sort of a two-station-wagon opera. And why? We wanted the piece to be able to be put on in various [Kahn] buildings. This was an important thing for us, requiring an absolute minimum—in fact, requiring no traditional theatrical space at all. No drops, no orchestra pit. A flat space that can hold an audience, that's really all we were thinking about. We would be delighted to have it put on in theatrical venues, although it would just be lost at the Met or virtually any traditional opera house.

Two of the Kahn buildings have already shown great interest in having performances, so we just have to raise some money and do the planning. It won't just happen overnight, but those will be the next stages. I hope this piece has a long and varied life. ■

**FOR MORE INFORMATION**
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**David McCullough—Thursday, May 17**
Award-winning historian and author of *The Greater Journey*

**Hon. Shaun Donovan—Friday, May 18**
Architect and the Secretary of the U.S. Department of Housing and Urban Development

**Architects of Healing—Saturday, May 19**
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In addition to the inspiring stories of the rebuilding and memorial at the Pentagon and the Flight 93 National Memorial, six architects who offered their experience to help rebuild and memorialize Ground Zero will share emotions and anecdotes, including Daniel Libeskind, FAIA; David Childs, FAIA; Michael Arad, AIA; Craig Dykers, AIA; Steve Davis, FAIA; and Santiago Calatrava, FAIA.

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# Books

**Spaces Speak, Are You Listening? Experiencing Aural Architecture**
Barry Blesser and Linda-Ruth Salter
The MIT Press, 2007
Reviewed by Matthew J. Kiefer

**Unless you're an acoustician** or a concert violinist, your auditory experience of built space is probably intuitive or even unconscious, at least until sound becomes noise that disturbs you. So it may surprise you to know there is a proto-discipline called "aural architecture": the properties of the physical environment that can be experienced by attentive listening.

It has its own language, grounded in audio engineering, cognitive psychology, and sensory anthropology, and the authors—a former MIT professor and digital audio pioneer, and his wife, an independent scholar—speak it fluently. In fact, they seem to have invented it, or at least synthesized the coinages of others, in this comprehensive, lucid, and insightful account of a discipline you may not even have known existed. And yet it is unavailable as an audio book!

Auditory spatial awareness, though it varies widely among listeners, is innately human. It helps us navigate, influences social behavior, enhances our perception of voices and music, and affects the sensory experience of our environment. It can't really be taught, but it can be learned, as the almost extrasensory spatial awareness of some blind persons attests.

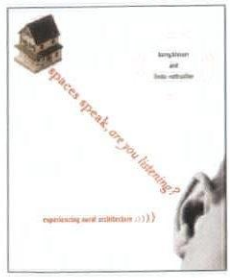
For millennia, the acoustic commons promoted social cohesion. The Greek amphitheater spread oratory and drama to the masses; cathedrals were reverberating sonic instruments for Gregorian chant. Until transportation arenas replaced acoustic arenas in the 20th century, towns were bounded by the reach of the church bells or the chiming of the town clock.

As Quakers know, quietude preserves the acoustic arena as a common resource. Yet we have mostly let "sonic power"—noise from vehicles, machines, and loudspeakers—disrupt acoustic geography. Broadcasting, recording, and amplification have largely converted the shared experience of music, drama, and public speech into private activities, reflecting the larger societal shift from belonging to autonomy and privacy.

The acoustic attributes of built spaces can be shaped intentionally (say for a concert hall), but they mostly arise incidentally. In fact, as the authors admit, aural architecture is barely a recognized discipline. Although they are more interested in explication than exhortation, their book provides a persuasive argument for being more intentional about the sonic effects of built space—and for abating noise pollution.

Since auditory spatial awareness seems to work just fine even when you're unaware of it, if your nightstand is already sagging, you may not feel compelled to add this book to the pile. But it's absorbing reading, and if you're designing space where sound quality is important—not just concert halls, but restaurants, libraries, public buildings, and places of worship—you really should learn this language.

One wonders if Boston City Hall would be less reviled if its visually compelling but acoustically challenged spaces had benefited from such fluency.



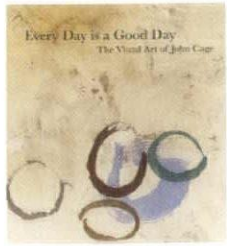

**Matthew J. Kiefer** is a land-use attorney at Goulston & Storrs in Boston. He teaches in the urban planning program at the Harvard Graduate School of Design.

**Every Day is a Good Day: The Visual Art of John Cage**
Hayward Publishing, 2010
Reviewed by Andrew Witkin

**John Cage brought a nonjudgmental approach** to the highly opinionated world of modern art. For a man supposedly apolitical, his example is a bold one. This does not mean that *we* have to look at his work with the same approach.

This book appears, at first, to be just like any other on Cage: reverential, referential, and lacking much in-depth investigation. The good news is that it is far more informative than just reverential, and far more educational than just referential. It claims to be the first to present the full swath of Cage's visual output and does a solid job presenting a good number of works to illuminate the growth, changes, and alternate paths Cage chose.

Consisting of six essays, an index of sorts, and a slew of color plates, *Every Day is a Good Day* provides firsthand accounts of those who assisted Cage (Kathan Brown, Ray Kass, and Laura Kuhn); those who had experiences with him in the visual art world (Irving Sandler); those who helped formulate presentations for or with him (Julie Lazar); and an artist, Jeremy Millar, who conceived of both the book and the accompanying touring exhibition to present Cage's work, explain some of it, and to treat it with a Cage-like approach.



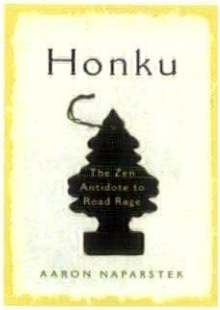

**Andrew Witkin** is director of Barbara Krakow Gallery in Boston, a working artist, and a voracious consumer of all things Cage.

Throughout the book, several references are made to Arnold Schoenberg demanding that Cage devote his life to music (and so he did), but there is little in the way of real discussion of where Cage's visual works (begun in 1969) fit in to the greater world of the arts. *4'33"* is well known; the use of chance procedures in composing, the event/circus/performance at Black Mountain, prepared piano, use of live radio, and on and on are all elements of Cage's work that have their place in history (whether one likes the results or not). This book does not try to deal with that sort of question in the visual world, but it does provide a primer on who helped Cage when he was interested in making things.

In Cage scholarship, there is much assumed. This book does an excellent job of ignoring that approach and presenting some basics: the primer in the back of the book that serves as a loose dictionary of Cage terms; the information Kuhn lays out; and the essential (though rather abbreviated) explanation by Lazar of how Cage's last great action—*Rolywholyover A Circus*—was conceived, how it began, and what it was. For all these reasons and for the opportunity to see images of some dynamic and layered works, *Every Day* is a welcome addition to the world of Cage literature.

Let's hope the next one takes the information available in this and, much as Cage would have appreciated, asks more questions without worrying about what the answers would be.

---




**David Scharfenberg** is news editor at *The Providence Phoenix*. He drives a rusting Mazda with a working horn.

**Honku: The Zen Antidote to Road Rage**
Aaron Naparstek
Villard Books, 2003
Reviewed by David Scharfenberg

**The car horn, despite its ubiquity**—or, perhaps, because of it—retains a remarkable capacity to enrage.

Take Aaron Naparstek, a writer and Web producer parked in his one-bedroom apartment in Brooklyn around Christmastime. No stranger to honking, he suddenly finds himself seized by anger when some punk in a crappy blue sedan outside his window lets out a piercing, nonstop blast of particular violence.

To the fridge he goes and comes back with a carton of eggs—determined to make contact with the windshield. One, two, three. By the time he hits glass, the guy is out of the car, shouting obscenities and threatening to make a deadly return that night.

"I realized," Naparstek writes, "that I had snapped. I had crossed a line. I had soaked up so much honking and road rage that I had become the honking."

Determined to find a yolkless outlet for his anger, he begins crafting honku—haikus about honking. His first:

> You from New Jersey
> honking in front of my house
> in your SUV

Soon he is posting the poems in the neighborhood—inspiring honkus from neighbors, "please stop honking" leaflets from 76th Precinct cops, and, eventually, Naparstek's book, *Honku: The Zen Antidote to Road Rage*.

The slim volume occasionally descends into cliché. I could have done without the verse about the guy in the sports car with the midlife crisis. And the swipe at our fair city is of eye-rolling predictability:

> Nearly ran me down
> then flipped me the bird as well—
> welcome to Boston

Flip this, Aaron! (OK, maybe you're right about us.) But all in all, the book—perfectly sized for your glove compartment—is a clever, self-conscious, and biting take on all things automotive.

> Gruesome hit-and-run
> fatalities up ahead
> how awful—I'm late

> All claim innocence
> in line at the impound lot
> above, wing'd pigs soar

> Ignorant boyfriend—
> honking in the driveway does
> not impress my dad

Some of these poems seem aimed at inducing a knowing laugh—no more, no less. But the best of them, like the verse on the misguided boyfriend, tap into a fundamental truth: The automobile is not mere conveyance, not just transportation from one meaningful spot to the next.

No, it is a meaningful spot itself: a place for a jerk in a blue sedan; a clueless beau; and, yes, a bird-wielding Bostonian to reveal something essential—and maybe a little ugly—about his character.



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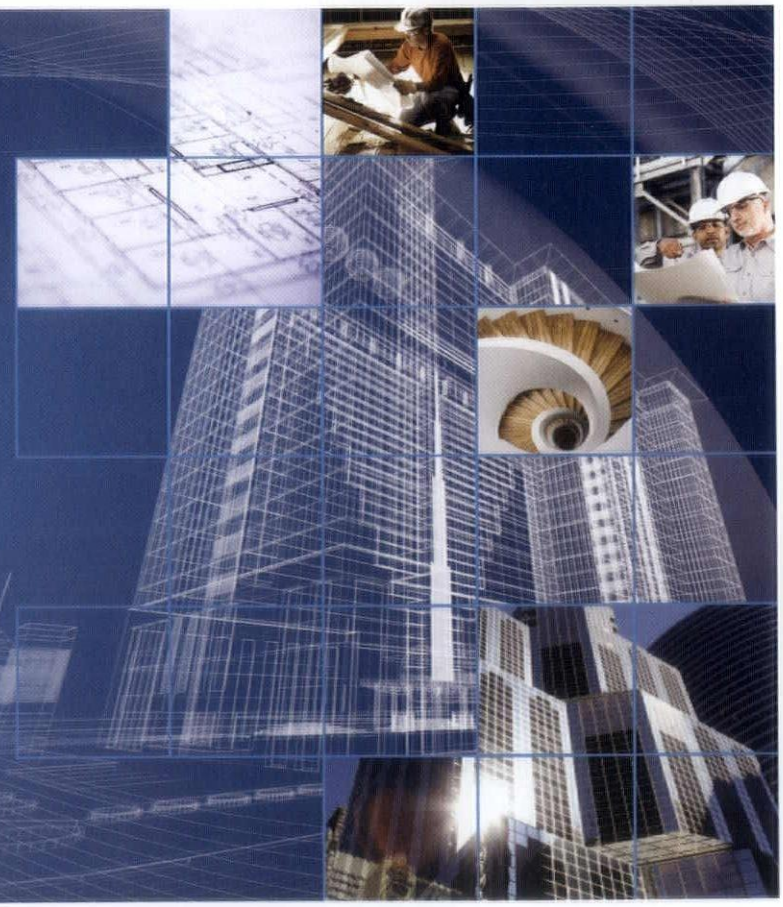
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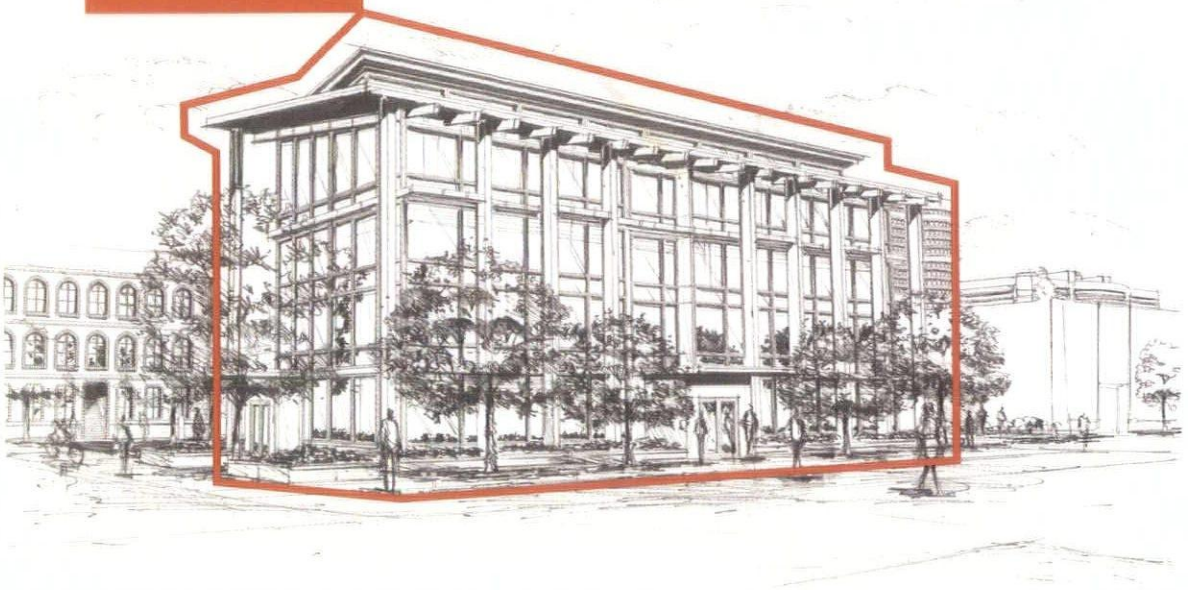
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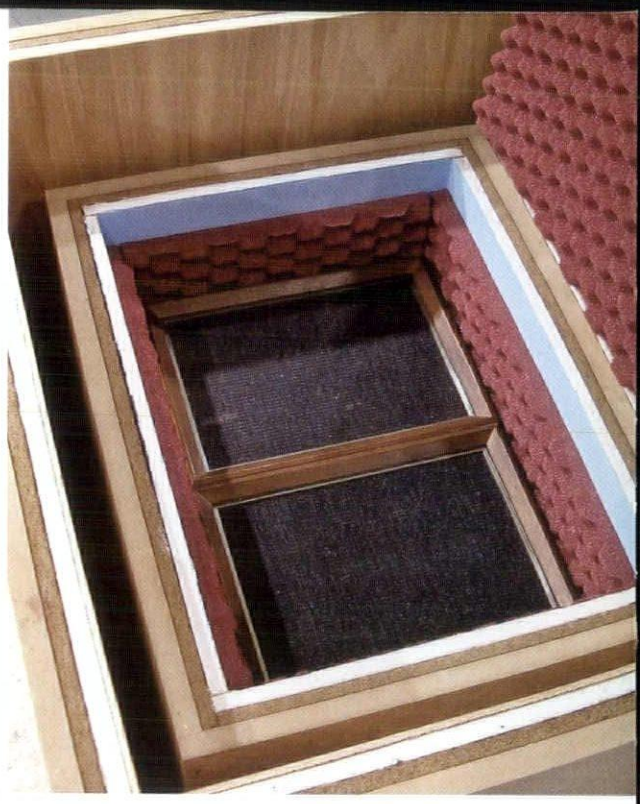
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This highly interactive public art project invites anyone to record city neighborhood sounds with a smartphone, upload, and mix. Invented by a trio of Georgia Tech professors, so far urban sound events have happened in San Francisco, Atlanta, and New York City. Perhaps it's time for Boston? ■

# The Rest Is Silence

**Jeffrey Mansfield** is a Master of Architecture candidate at the Harvard GSD. His research explores the intersections between deafness, mainstream culture, architecture, urbanism, and politics.



**RIGHT**
*Rational Impulse*, Tom Kotik, 2004. Constructed of wood and foam—materials commonly used to mitigate sound—Tom Kotik's art explores what he calls "the architecture of silence."

**When Beethoven's Ninth Symphony** premiered in 1824, it was met with celebratory praise, offset by ambivalence toward its stylistic breaks from the composer's early work. Some of Beethoven's critics attributed these anomalies to his inability to hear, or worse, to his diminished genius; some believed his talent declined after he became profoundly deaf 10 years earlier.

And so it remained until 1870, when German composer Richard Wagner published the essay *Beethoven* and rescued a great musical work from obscurity. Recognizing the elemental quality of Beethoven's notes, Wagner insisted that Beethoven's rejection of conventional tonal, rhythmic, and textural continuity in favor of short primordial bursts liberated music from the representational qualities of the outer world.

As the contemporary artist Louise Stern points out, the absence of representation also begets vulnerability. According to Stern, "Words are our protection against the world." In using our voices, we represent ourselves to the world and establish the terms on which we are judged. Our voice creates a protective shell, projecting polished versions of ourselves.

Like Beethoven and Stern, I am profoundly deaf. Like Stern, I am prelingually deaf. I use a sign language interpreter to facilitate conversation. Without an interpreter, I am often excluded as others converse. When I can no longer suppress an accumulating panic, I spasmodically interject a request for someone to summarize. This is inevitably delayed or out of place, a short burst, not unlike those of Beethoven's Ninth, where I communicate a desire to communicate. In these situations, I am exposed to the world, devoid of my protective shell.

Our bodies are transmitters of voices and also receivers of sound. Often the outermost layer of our body's engagement with the world, audible sound acts as a sort of extended skin. In the absence of sound, as in profound deafness, this extended skin fails to engage with the auditory environment. Silence.

Yet silence is also liberation. Cut off from language and the information saturation of the auditory environment, we turn inward to our bodies, where each sense, including hearing, now amplifies a visceral, elemental, and intimate relationship with the world outside ourselves.

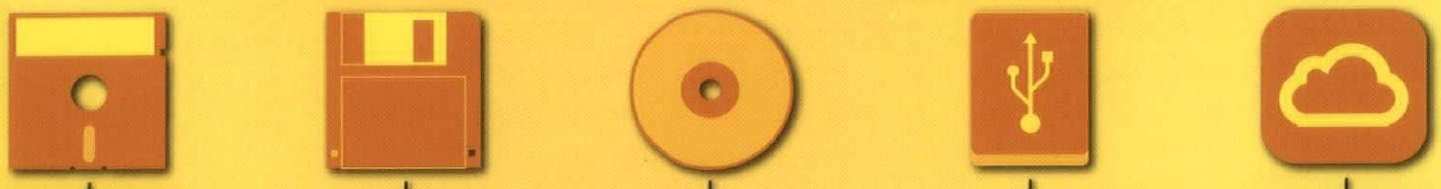
As a child taking in Boston Ballet's *The Nutcracker*, unmoved by the orchestra, I marveled at how each dancer's outfit folded or creased a certain way with each movement. In my innocence, I believed that each crease, each fold, was specified by the choreographer. What I experienced at the ballet was a heightened sense of the choreography between the body and the world.

Deafness can be an abscission from mainstream society, but it can also challenge traditional modes of communication, with interesting results. Alexander Graham Bell drew on his expertise as an elocutionist for deaf pupils to perfect the telephone. Thomas Edison's deafness provided practical impetus for the light bulb and the phonograph. To communicate with his deaf wife, the computer scientist Vinton Cerf, himself hard of hearing, developed the TCP/IP, the protocols that helped launch the Internet.

In my work as an intern with the Portable Light Project, led by KVA Matx, we are challenging the conventional energy grid by introducing new micro-energy infrastructures to remote communities such as the Brazilian Amazon. Through portable solar textile kits outfitted with LED lighting and USB ports to charge cell phones and small appliances, this distributed infrastructure will give these communities a voice, enabling them to engage on their own terms.

The representational environment—including architectural representation, like construction drawings—is oversaturated with information and language. But when we step away from this construct, as in deafness or in an isolated Amazon community, we allow ourselves new ways of seeing the world. In deafness, as in architecture, the decision to forego representation in favor of silence is a political one. ■

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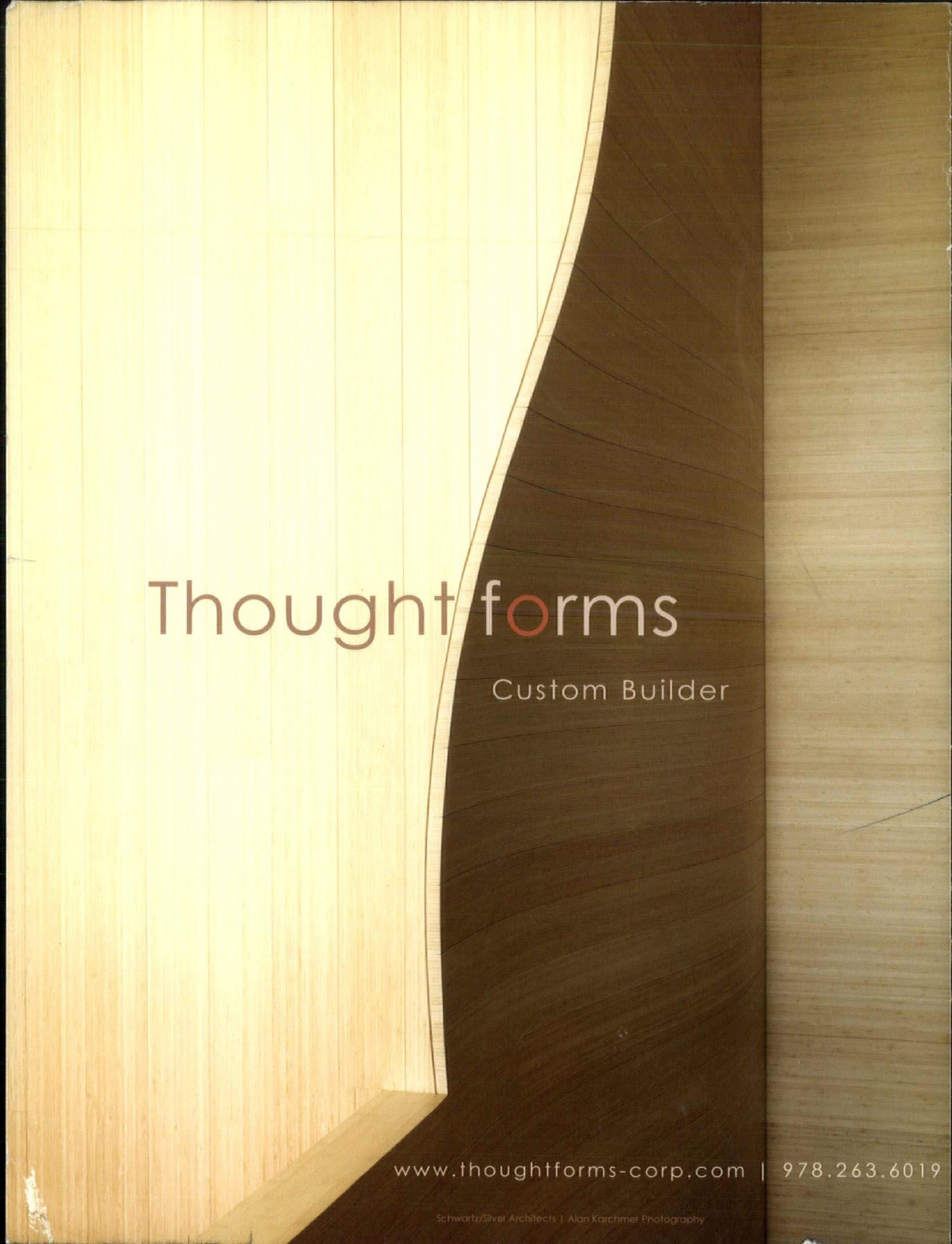


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